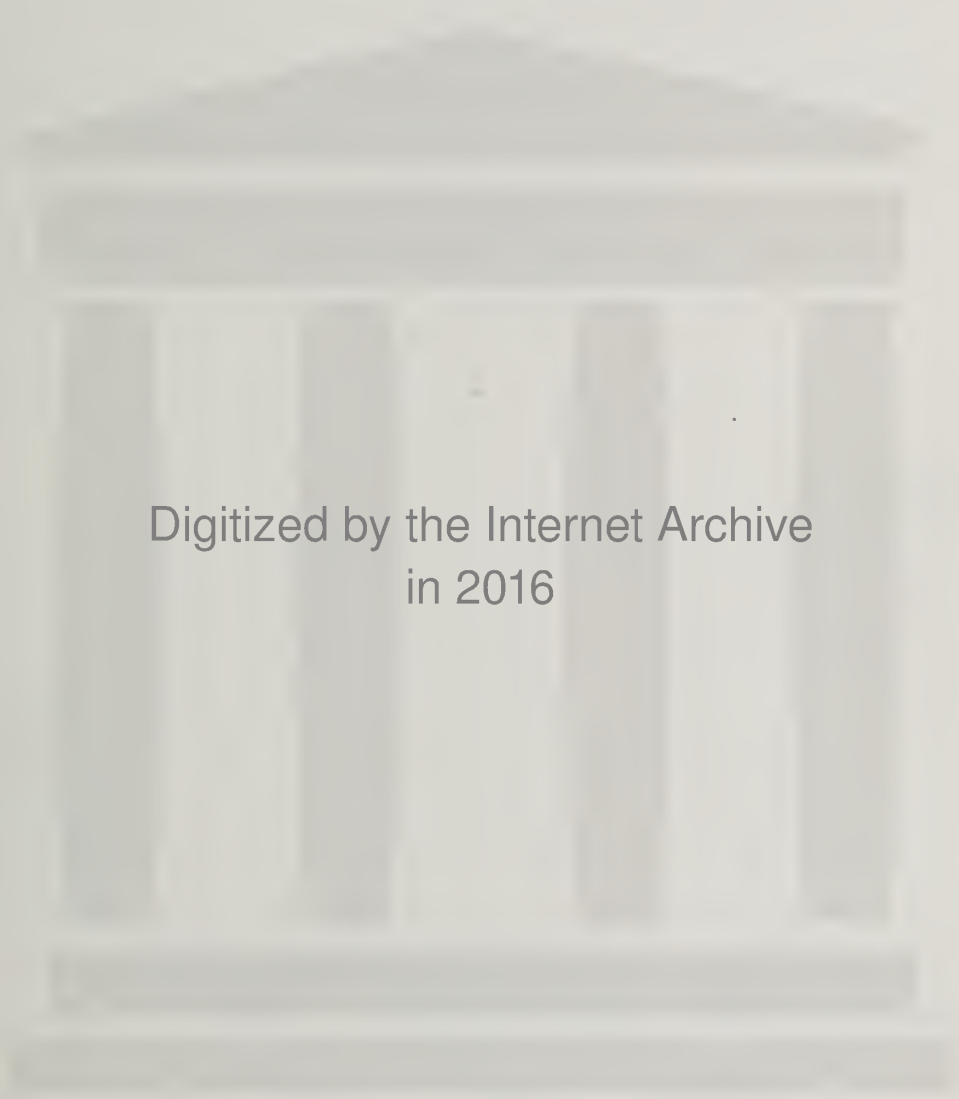


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DELAWARE STATE MEDICAL JOURNAL

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1958

VOLUME 30

JANUARY, 1958

NUMBER 1

THE PHYSICIAN'S INVESTMENT
NEW TREATMENT OF HYPERTENSION

Complete Contents on Page iv



Stop useless nagging cough

HISTADYL E.C.

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CHLOROMYCETIN®

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CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

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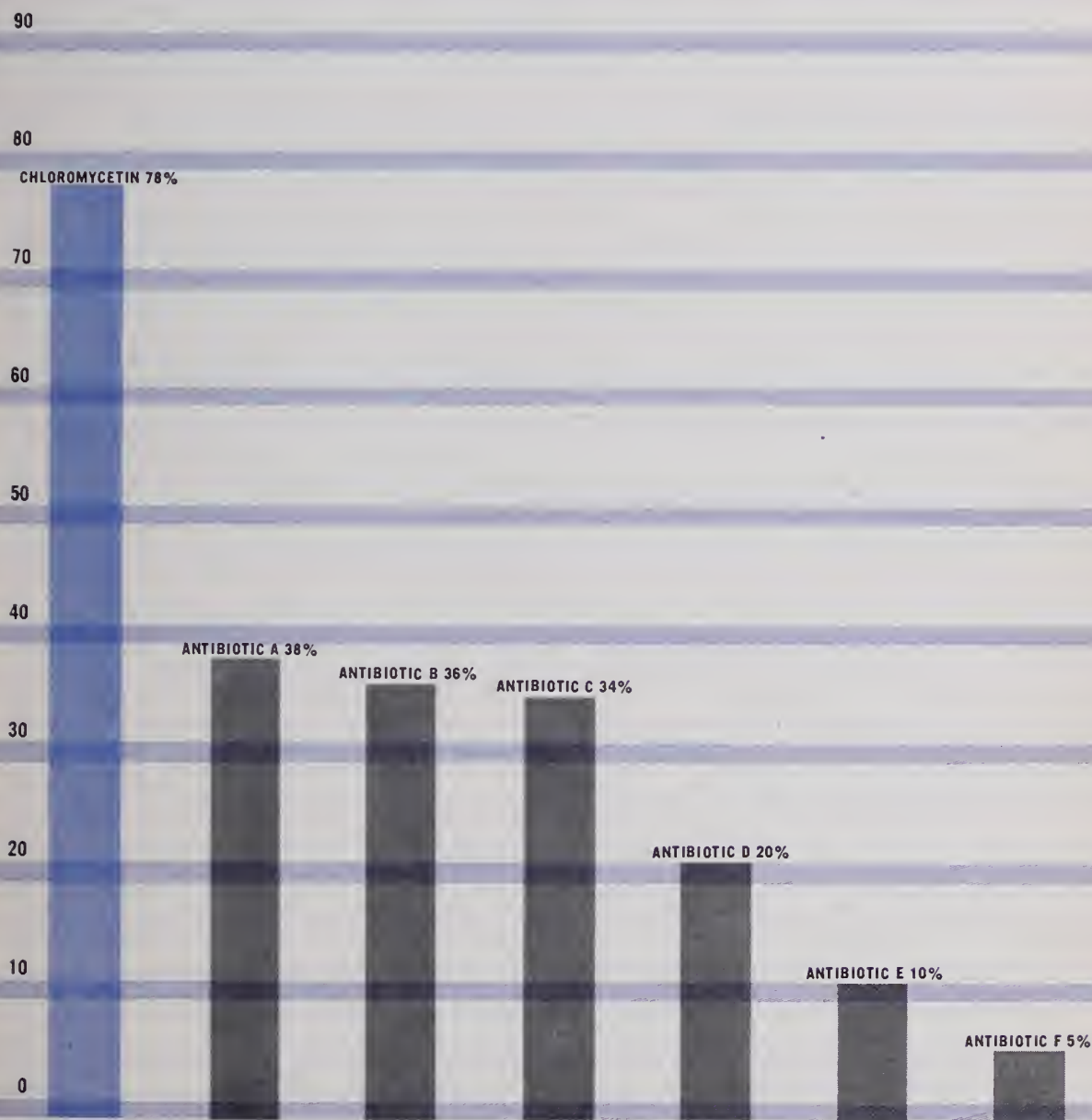
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COMPARATIVE SENSITIVITY OF MIXED *PROTEUS* SPECIES TO CHLOROMYCETIN AND SIX OTHER WIDELY USED ANTIBIOTIC AGENTS*



*This graph is adapted from Waisbren and Strelitzer.¹⁵ It represents *in vitro* data obtained with clinical material isolated between the years 1951 and 1956. Inhibitory concentrations, ranging from 3 to 25 mcg. per ml., were selected on the basis of usual clinical sensitivity.

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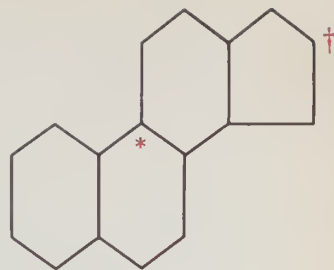
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 with all previous corticosteroids

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- ◇ No potassium loss
- ◇ No interference with psychic equilibrium
- ◇ Lower incidence of peptic ulcer and osteoporosis

Biological Effects of Aristocort

with

particular emphasis

on:

Kidney function

Animal studies on ARISTOCORT¹ have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.¹ Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.² Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.³ Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.^{4,5} In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.^{6,7}

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.¹ Potassium balance studies in humans^{2,3} revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.^{6,7}

Calcium and phosphorus

Phosphate excretion in animals¹ was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies³ demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.³ At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.^{2,3}

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.⁸



Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet¹ and cottonball⁹ tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.¹⁰ Clinical studies¹¹ of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.¹² The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.¹

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

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The Promise of Aristocort

in Reduction of Side Effects

◊ It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are below compared to the reported incidence of those from prednisone and prednisolone.

Peptic Ulcer

The most recent study available on the incidence of peptic ulceration in patients with rheumatoid arthritis on long-term prednisone therapy reported 12 ulcers in 49 cases (24 per cent).¹ Lowest incidence of 6.5 per cent has been recorded in a group of patients on this drug for six to nine months.² Four of six ulcers, in another series of 39 patients on prednisone,³ appeared in less than three months of therapy.

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently

analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The incidence of compressed fractures of vertebrae—and to a lesser extent in other bones—is high in patients on prolonged therapy with all previous corticosteroids.⁴ One group of 49 patients¹ on long-term prednisone treatment experienced nine vertebral fractures (18 per cent); another series of 39 developed eight fractures (20 per cent),³ four to 15 months after the beginning of steroid administration.

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case⁵). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,⁴ and toxic syndromes producing even convulsions and death.⁶

Since the onset of these complications is not directly related to duration of steroid administration,⁷ the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.⁸ Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.^{5,9}

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.^{10,11} Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.⁵ These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, light-headedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,¹² 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),⁸ and in inflammatory and allergic skin diseases (33-50 per cent).^{13,14}

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in a lower incidence of the major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort

in Rheumatoid Arthritis

ARISTOCORT therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.

Significant is the fact that most patients were severe arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates¹ treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of ARISTOCORT sufficient to control arthritic symptoms.*

Hartung² treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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what are the differences among tranquilizers ?

Reviews of ataraxic therapy commonly divide the available tranquilizers into three main categories: the rauwolfia derivatives; the phenothiazine compounds; and a smaller group of agents which are lumped together for the sake of convenience rather than because of any common characteristic.

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3. ATARAX is, perhaps, the safest ataraxic known. It is outstandingly well tolerated. Every clinical report confirms this fact.* After more than 150 million doses, there has not been a single report of toxicity, blood dyscrasia, parkinsonian effect, liver damage, or habituation.

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In reviewing your own experience with tranquilizers, remember that ATARAX is in a class by itself; that you cannot judge it by your results with any other drug. To get to know ATARAX at first hand, prescribe it for the next four weeks whenever a tranquilizer is indicated. See for yourself how it compares.

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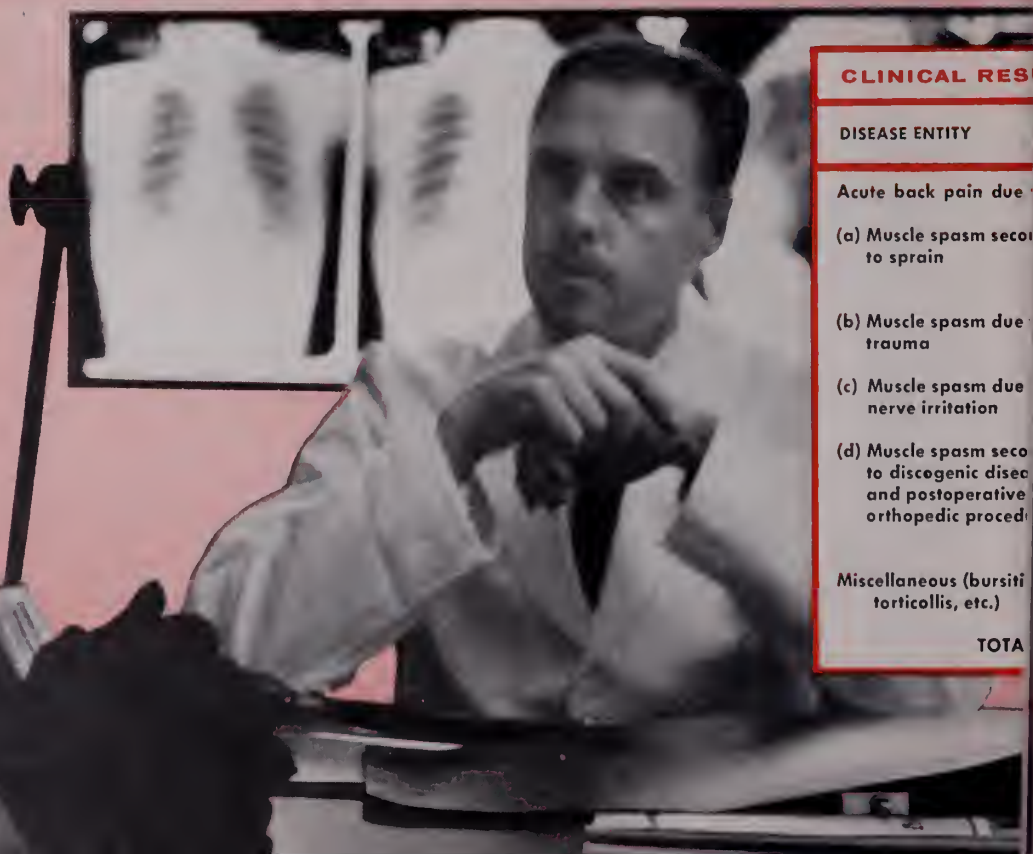
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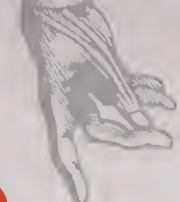
(b) Muscle spasm due to trauma

(c) Muscle spasm due to nerve irritation

(d) Muscle spasm secondary to discogenic disease and postoperative orthopedic procedure

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ROBAXIN is highly specific in its action on the internuncial neurons of the spinal cord — with inherently sustained repression of multisynaptic reflexes, but with no demonstrable effect on monosynaptic reflexes. It thus is useful in the control of skeletal muscle spasm, tremor and other manifestations of hyperactivity, as well as the pain incident to spasm, without impairing strength or normal neuromuscular function.

Beneficial in 94.4% of cases tested

When tested in 72 patients with acute back pain involving muscle spasm, ROBAXIN induced marked relief in 59, moderate relief in 6, and slight relief in 3 — or an over-all beneficial effect in 94.4%.^{1,3,4,6,7} No side effects occurred in 64 of the patients, and only slight side effects in 8. In studies of 129 patients, moderate or negligible side effects occurred in only 6.2%.^{1,2,3,4,6,7}

ROBAXIN IN ACUTE BACK PAIN^{1,3,4,6,7}

DURATION OF TREATMENT	DOSE PER DAY (divided)	RESPONSE				SIDE EFFECTS
		marked	mod.	slight	neg.	
2-42 days	3-6 Gm.	17	1	0	0	None, 16 Dizziness, 1 Slight nausea, 1
1-42 days	2-6 Gm.	8	1	3	1	None, 12 Nervousness, 1
4-240 days	2.25-6 Gm.	4	1	0	0	None, 5
2-28 days	1.5-9 Gm.	24	3	0	3	None, 25 Dizziness, 1 Lightheadedness, 2 Nausea, 2 *
3-60 days	4-8 Gm.	6	0	0	0	None, 6
		59	6	3	4	* Relieved on reduction of dose

Indications — Acute back pain associated with: (a) muscle spasm secondary to sprain; (b) muscle spasm due to trauma; (c) muscle spasm due to nerve irritation; (d) muscle spasm secondary to discogenic disease and postoperative orthopedic procedures; and miscellaneous conditions, such as bursitis, fibrositis, torticollis, etc.

Dosage — Adults: Two tablets 4 times daily to 3 tablets every 4 hours. Total daily dosage: 4 to 9 Gm. in divided doses.

Precautions — There are no specific contraindications to Robaxin and untoward reactions are not to be anticipated. Minor side effects such as lightheadedness, dizziness, nausea may occur rarely in patients with unusual sensitivity to drugs, but disappear on reduction of dosage. When therapy is prolonged routine white blood cell counts should be made since some decrease was noted in 3 patients out of a group of 72 who had received the drug for periods of 30 days or longer.

Supply — Robaxin Tablets, 0.5 Gm., in bottles of 50.

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References: 1. Carpenter, E. B.: Publication pending. 2. Carter, C. H.: Personal communication. 3. Forsyth, H. F.: Publication pending. 4. Freund, J.: Personal communication. 5. Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: American Pharm. Assn. 46:374, 1957. 6. Nachman, H. M.: Personal communication. 7. O'Doherty, D.: Publication pending. 8. Truitt, E. B., Jr., and Little, J. M.: J. Pharm. & Med. 2:100, 1957.

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Triaminic does not cause secondary congestion, eliminates local overtreatment and consequent nasal pathology.

*Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

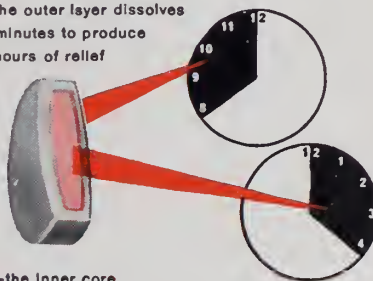
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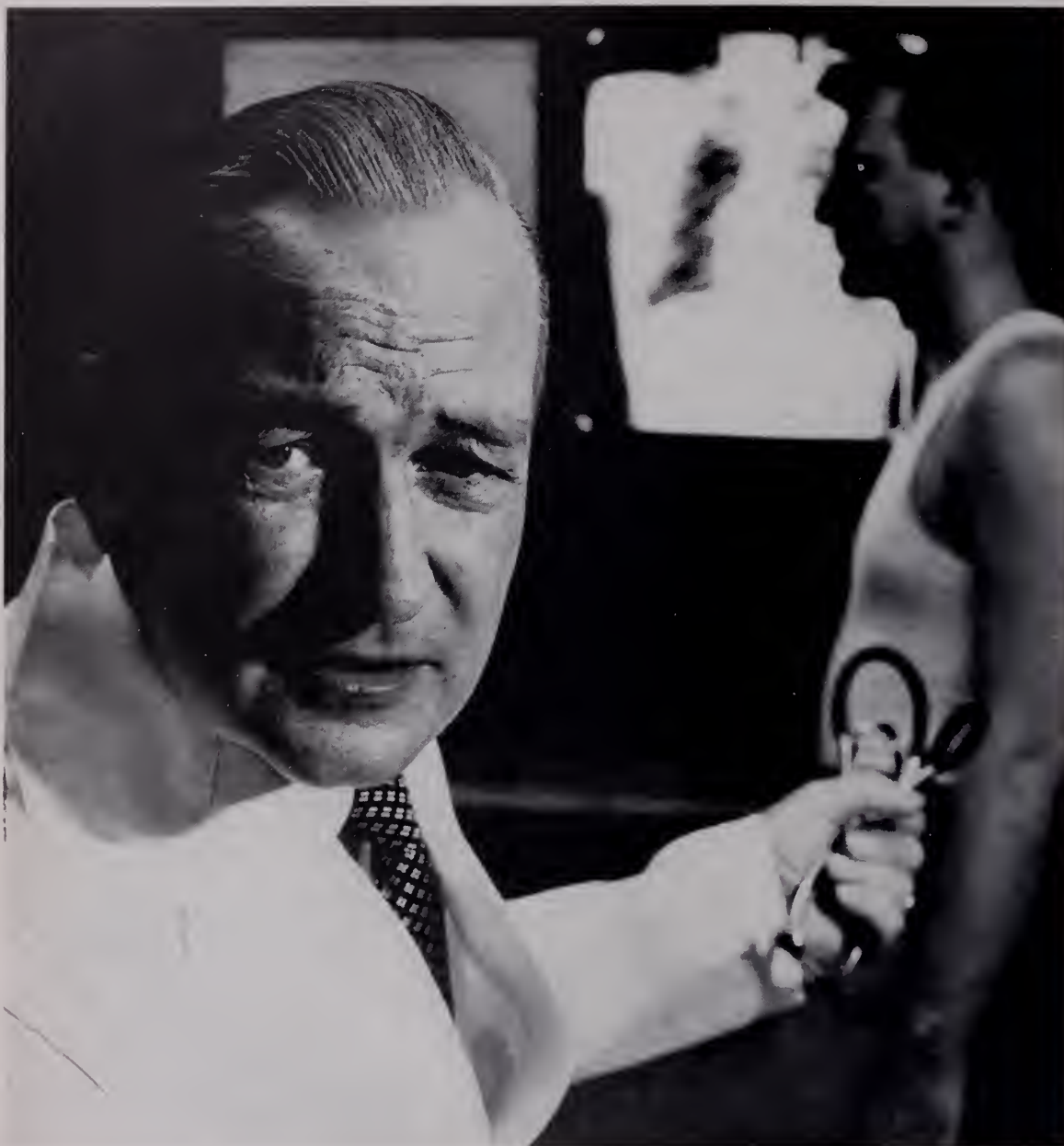
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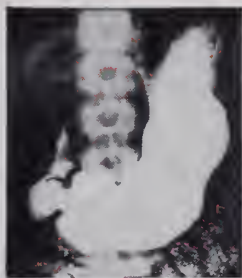
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†Ayd, F. J., Jr.: The Treatment of Ambulatory and Hospitalized Psychiatric Patients with Trilafon, presented at Ann. Meet., Am. Psychiat. Assoc., Chicago, Ill., May 13-17, 1957.

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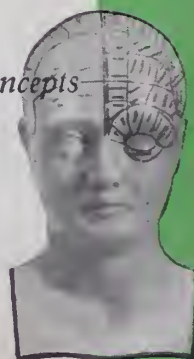
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THE IMPACT OF CHLOROTHIAZIDE (DIURIL) ON THERAPY IN ARTERIAL HYPERTENSION

DAVID J. REINHARDT, III, M.D.*

The management of arterial hypertension has been a most difficult problem. In the more severe forms of the disease, where structural changes in the cardiovascular system secondary to the elevated pressure have occurred, agreement is universal that reduction of blood pressure is necessary.

The surgical measures of thoraco-lumbar sympathectomy and bilateral adrenalectomy have proven to be effective. However, they are major operative procedures involving considerable risk both during and following surgery. Furthermore, in the individual case, improvement can not be predicted and if the operation should prove to be successful the patient can not be promised freedom from later recurrence.

The recent advances in drug therapy have been encouraging. However, in the more severe cases the patient is again endangered by large doses of anti-hypertensive drugs such as the Veratrum group, hydralazine (Apresoline) and the ganglionic blocking agents. The Rauwolfia derivatives, while relatively harmless in small amounts, do cause serious side effects when increased to their full therapeutic levels.

The dietary management of hypertensive disease by sodium restriction was first shown to be effective by Allen¹ thirty-eight years ago. However, because of the difficulty of maintaining the low level of dietary sodium (less than 200 mgm daily) which is necessary to obtain a hypotensive effect, few therapists continued to utilize this tool.

In 1949 a flurry of interest was stirred by the introduction of cation-exchange resins which were used to bind the sodium and prevent systemic absorption.² Again, it was illustrated that one could achieve a good blood pressure response if the resins were taken by mouth with meals and the dietary sodium restricted to one gram daily which was a far more palatable diet. However, once again this effective anti-hypertensive measure was not widely used due to the unpalatability of the resin, the expense to the patient, and the most important factor which was the lack of patient education in a rigid low sodium diet.

It seemed reasonable to suspect that the reduction of total body salt by diuretic agents might be effective. Moyer³ dramatically illustrated this by giving several daily injections of an organic mercurial agent. The diuretic activity of the compound became less effective with prolonged usage so that general recommendations for this type of program were not made.

The reduction of total body sodium then seemed to be a very effective method of reducing the blood pressure. When added to other anti-hypertensive measures (surgery, drugs)⁴ this method very frequently resulted in a normotensive patient.

Finally in 1957⁵ information concerning a new oral saluretic-diuretic agent was published. This compound was chlorothiazide (Diuril). It was found to produce a marked increase in the excretion of sodium and chloride, and to a much lesser extent, of potassium in the urine. The proportionate

* Director, Hypertension Clinic, Delaware Hospital; Cardiologist, Delaware State Hospital.

excretion of water was noted to be less than with either the carbonic anhydrase inhibitors or with the organic mercurials. Chlorothiazide was also shown to be free of the development of tolerance so that long-term usage was practical. Acute or chronic toxicity has not been demonstrated clinically. Side effects were minimal, the only dangers lying in potassium depletion and in the development of the low salt syndrome. These have been obviated by (1) supplementary potassium in the form of orange juice or as potassium chloride, and (2) a diet of average sodium content. In treating hypertensive patients care has been taken to reduce, preferably by one half, the dosage of other anti-hypertensive agents as the effectiveness of these drugs was shown to be markedly enhanced by the saluretic effect of chlorothiazide.⁶

In the Hypertension Clinic of the Delaware Hospital an evaluation of chlorothiazide has been in progress since September 1957. Twenty hypertensive patients received this agent, in most cases in conjunction with rescinamine (Moderil), hydralazine (Apresoline) and mecamlamine (Inversine). Of this group, seventeen patients showed a reduction of mean blood pressure of at least 20 mm. of mercury while the other agents were kept at the same dosage or reduced. These patients were all severely hypertensive with a pretreatment diastolic pressure of at least 120 mm. of mercury. The patients who did not respond were in a state of chronic uremia with minimal kidney function. A more detailed report of our investigation will follow at a later date.

Other investigators such as Tapia et al⁷, Freis⁸, Moyer³, and Wilkins⁹, have given results in larger study groups for periods of time up to a year which substantiated the effectiveness and safety of this anti-hypertensive agent.

REVISED THERAPY OUTLINE

When the decision is made in the Hypertension Clinic of the Delaware Hospital that a patient has a form of hypertension which warrants control, the following amended course is embarked upon.

I. Diet:

No restriction of dietary salt is made. Weight reduction if needed is advised. One eight-ounce glass of either canned, fresh or frozen orange juice is recommended daily. In lieu of this, potassium chloride 0.5 Gm. twice daily is given.

II. Drugs:

1st Step:

(a) Chlorothiazide 0.5 Gm. three times daily.

(b) Rauwolfia derivatives, one to three times daily. (Rescinamine in our experience has the lowest incidence of side effects.)

2nd Step: (If adequate response is not obtained with the 1st step).

(c) Hydralazine starting with 25 mgm. four times daily and increasing as needed until a total daily dose of 400 mgm. is reached. It is our opinion that it is unsafe to proceed beyond this level.

3rd Step: (If adequate response still not obtained).

(d) Mecamlamine in starting doses of 2.5 mgm. four times daily with gradual increment of dosage until blood pressure control or side effects restrict further increase. We have carried the dosage to levels of 100 mgm. daily before satisfactory control has been obtained. However, most patients will be controlled at the 20 mgm. level or below.

DISCUSSION

It is now apparent that the earliest published significant method of blood pressure reduction in hypertensive patients has found a major place in the management of the disease. The exact mechanism of blood pressure improvement in hypertensive patients treated by reducing body sodium is unknown. The rather marked effect of chlorothiazide on the blood pressure has led some observers to hypothesize a specific anti-hypertensive effect for this compound. Studies on normotensive patients and animals have not supported this premise. It would seem most likely that the increased saluretic activity as compared to other diuretics is responsible for this action.

It appears that there is now available in chlorothiazide a drug which is a specific antagonist to the abnormal sodium metabolism seen in the vast majority of hypertensive patients. The use of this agent may stand the test of time as the most vital and specific weapon in the treatment of a relatively non-specific disease in which the only specific abnormality known is one of sodium metabolism.

CONCLUSION

The introduction of chlorothiazide (Diuril) seems to offer for the hypertensive patient a method of total body sodium reduction which is both practical, safe, and effective. When this method is used in conjunction with the current therapies for this disease, either a reduction of drug dosage or control of the blood pressure occurs. Chlorothiazide now appears to be the drug of

choice when initiating therapy in the average hypertensive patient.

Appreciation is expressed to Merck Sharp & Dohme Research Laboratories for the supplies of Inversine and Diuril, to the Pfizer Laboratories for the supply of Moderil and to Ciba Pharmaceutical Products, Inc., for the supply of Apre-soline.

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THE DOCTOR'S INVESTMENT PROGRAM*

PRESIDENT MURRAY:

We have a five-man panel of prominent business people from Wilmington, most of whom you know either personally or by reputation, who will discuss the Doctor's Investment Program. The Moderator will be Mr. Paul D. Lovett, Vice-President and Trust Officer of the Delaware Trust Company.

"Senior Securities" will be discussed by Mr. George Winchester, Partner, Laird, Bissell and Meeds.

"Common Stocks" will be discussed by Mr. Josiah M. Scott, Laird and Company.

"Real Estate" by Mr. Arnold Goldsborough.

"Insurance" by Mr. Edward G. Braun, Jr., District Manager of the Aetna Life Insurance Company.

Mr. Lovett, will you take charge, please.

CHAIRMAN LOVETT:

I was told when I came up here if there were any questions that were asked of the panel that they couldn't answer that I had to have the answer. So please, panel members, make the answers to your questions very simple.

I would like to go back for a moment, if you will permit a personal reference, to World War I, when I happened to serve a year in Uncle Sam's Army, but in no conspicuous way, just in the camps in the U.S.A. until I was about ready to go overseas, and then they decided to terminate hostilities. But I recall very distinctly that probably the most impressive part of that whole experience was the experience I had with the doctors. I believe at that time they knew of only about two or three different types of medicine. It seemed to me they did. One was iodine, and the other was epsom salts. I am sure that when they

mixed up a dose of epsom salts that they put in all the salts that they could until they could just get enough water in there to dissolve the crystals, and it was quite a task to swallow it.

If you had a little touch of sore throat, they had a big bottle of iodine and a long stick with a swab on the end, and it seems to me it was undiluted. But I soon found that if I had any minor ailments, the cure was a whole lot worse than the sickness.

Since that time, of course, we seem to have specialists in every field, and we don't have those old general remedies. That is true in the investment field, too.

We have with us today a panel of men who are experienced in their various fields. I am a little afraid that their fields are so broad and cover such a territory that we can only skim the surface.

The first on the panel who will make some remarks is George Winchester, a partner of Laird, Bissell and Meeds, who will talk on the subject of "Senior Securities". I have known Mr. Winchester for a good many years—I would say about 28 or 29 years. I have learned to know that George is sound in his judgment and that he tells the straight truth whenever he talks to you. I would like to turn this part of the program over to Mr. George Winchester of Laird, Bissell and Meeds.

SENIOR SECURITIES

MR. GEORGE WINCHESTER:

A full dissertation on this subject would be lengthy and would certainly tax your patience, that is, the subject of senior securities, and certainly my ability to the breaking point.

But to be specific—everyone knows capital is necessary to run any kind of business. This takes the form of moneys put up by the business man and by others from whom he generally borrows. For the purpose of this discussion let us assume the

* Presented at the Annual Meeting of the Medical Society of Delaware, October 1957.

business is so well established as to have its common stock listed on the New York Stock Exchange. In this instance the borrowed capital of the business will be in the form of bonds which are no more than engraved certificates indicating the indebtedness of the borrower. The rate of interest will be stated on the bond; the date on which it is due for payment and the price at which the issue can be called for retirement in its entirety, or for partial retirement through the operation of a sinking fund, is also stated.

These instruments are in many forms. For example, mortgage loans may be secured by a lien on the entire assets of the business or they may be secured by the pledge of a specified part of the physical assets. There are others which may be backed by the pledging of valuable securities owned by the borrower and in this case are known as collateral bonds. A third classification is known as debentures. They are not backed by the pledge of any definite security but rely simply upon the credit of the company as a whole, taking into consideration the fact that bonds secured by definite assets come ahead of those that are unsecured. Another classification one runs into is income bonds. These are often issued by companies coming out of receivership and by those with quite uncertain prospects. The income bond pays interest only if earned except that the indenture, in accordance with which the bonds are issued, usually sets forth the requirement that the issuer may pay interest for three or four years even if it is not earned.

Bonds that are currently popular are convertible issues and those bearing warrants. The former provide, in addition to fixed interest and certain maturity, the right to convert into the common stock at prices generally fairly close to the prevailing market. This affords, in effect, a hedge operation so far as the buyer is concerned. He obtains an obligation and at the same time a chance to exchange into the common stock. Of course such an exchange will be made only if the company is successful and the shares have advanced. Let us consider the issue of Atlantic Refining 4½s of 1987, recently offered at 100 or \$1,000 per bond.

Here we have the obligation of a good company. Under unfavorable business conditions it might sell down to 90 or \$900 per bond indicating a ten per cent risk. Suppose, however, the company continues to show its present progress and the shares currently around 40 return to 57¾, the 1957 high. Since the entire issue can be converted into the common at 53 until August 15, 1962 such a rise in price would cause the bonds to sell at approximately 108 or \$1,080 per bond. Should the shares advance to 70, for example, the bonds would then be selling around 131 or \$1,310 per bond.

The Sperry Rand Company has recently issued 110 million debentures bearing interest at 5½% and due in 1982. Priced at par, each \$1,000 carries a warrant entitling the holder to purchase twenty shares of the common at \$25 through September 16, 1963. Should the stock advance to 30 there would be an approximate \$100 profit for each \$1,000 bond if the warrants are exercised. As in the case of Atlantic Refining Co. Convertibles, although to a lesser degree, the Sperry bonds would provide protection against declining business and some participation in the future growth of the company.

The issuer, by the process of convertibles, is able to sell his obligations at a slightly better price than if he sold mortgage or debenture bonds. Furthermore, the conversion of the debt into common stock avoids payment at maturity, while additional common shares necessarily issued upon conversion can be absorbed by the growing company.

One further group of bonds are those called Equipment Trusts. They are issued by the railroads to pay for necessary equipment such as cars and locomotives. Usually the railroad puts up a portion of the purchase price, perhaps 20 to 25%, then it offers the equipment trusts for the balance arranging to pay them off serially over a rather long period of years. During this time the title to the equipment purchased vests in a trustee named by the railroad and does not become the property of the railroad until the bonds have all been paid.

Because of their high quality this class of securities is popular with savings banks, insurance companies, and trust funds.

While these classifications fairly well cover the bond field I should like to emphasize it is essential for us to understand the holder of a bond is a creditor of the enterprise, while the issuer is a debtor. Of course this means the creditor can make the issuer live up to the terms of the loan as to interest and payment of principal. Should the issuer not be able to fulfill these obligations the holder of the bond has recourse to the courts for the enforcement of his rights.

The interest paid on bond issues is deductible from the borrower's gross income, thus reducing the net amount subject to federal income tax. Many companies, therefore, run the debtor-creditor risk in order to achieve the considerable saving involved as against the raising of money through the sale of shares, dividends on which come out of the net income after taxes.

Securities known as guaranteed stocks are frequently well regarded as investments. These often arise in consolidations whereby such railroads as the Pennsylvania have acquired subsidiaries. The United New Jersey Railroad & Canal Co. is an example. It is an important segment of its parent as it is the main line from Trenton to Jersey City. The entire assets of the company are leased to the Pennsylvania for 999 years at an annual rental of \$10 per share on the stock. The dividends constitute a charge on the lessee's income and the shares rate equally with other unsecured obligations of the Pennsylvania.

Preferred stocks differ from bonds entirely. They represent, as do common stocks, a part ownership of an enterprise and do not have the debtor-creditor relationship I have spoken about but do have a prior claim on the companies' earnings and assets before the common. There are many different kinds, such as the following: The Cumulative Preferred, issued by a company, must pay to the owner the stated dividend whether it is earned or not. If the dividend is not paid the company cannot be thrown into receivership but the owners of the common shares receive no re-

turn on their investment until everything due on the preferred has been settled.

In the Non-Cumulative Preferred the holder has merely a claim upon dividends in any one year before anything can be paid on the common. The company's management, in its discretion, will determine whether to declare the preferred dividends or not and is under no compulsion to do so as long as the common receives nothing. There was an interesting exception to this in the case of the United States Rubber Co. Having earned its full \$8 dividend on the preferred in 1938 it, nevertheless, paid only \$4. During 1939 it was in better financial condition and, desiring to establish the common stock on a dividend basis, it was decided that it was obligatory to pay, in addition to the regular preferred requirements, the \$4 unpaid in the previous year. I believe the decision in the United States Cast Iron Pipe case relative to the status of preferred dividends of New Jersey companies dictated the action of the Rubber Company directors. I may say that the decision was reversed by the Supreme Court of the United States and the situation no longer holds.

Convertible Preferreds allow the holders thereof to exchange their shares into common stock in certain ratios agreed upon at the time of issuance. This class is often very popular as it can provide a good measure of safety together with valuable privileges in case the common rises in the market. Kaiser Aluminum 4.75 Pfd. is cumulative to that extent and is convertible into common at 49½. The preferred shares now quoted at 90 would be worth approximately 140 should the common return to its 1956 high of 70 from its present price of 27⅞.

Participating Preferreds provide in addition to the normal prior claim on a company's earnings (to the extent of the agreed upon dividend) certain further participation in the net income. These are not nearly so numerous as convertible preferreds and are not looked upon with equal favor as they do not provide nearly so much profit possibilities.

Often preferred stocks as well as bonds can be retired at fixed prices through the

operation of sinking funds and in most cases are callable at a price set at the time of issue. The preferreds in the event of liquidation, or receivership, are entitled to their par value before the common shares receive anything.

The prime factor covering the price of highest grade bonds and preferreds is the cost of money. The reasoning behind this is due to the belief that the interest charges, dividends and payment at maturity or when callable are safe beyond any contingency. Consequently the price of such issues varies inversely with the cost of money. In other words, when money is hard to come by Du Pont 4½% Preferred will sell around 100 as it does today. When money is plentiful its price will be considerably higher; in fact it has not been very long since it was 120. Wide price variations in no wise suggest the possibility that Du Pont Preferred dividend is unsafe, but are definitely caused by changes in the supply of money available for investment.

Lower grade bonds and preferreds partake of the nature of common shares in their price fluctuations. This is because they are more dependent upon the earning power of the issuers as they do not have the wide interest and dividend coverage of the higher grade securities. Many people regard them as being only slightly more dependable than commons so far as interest or dividends, and inferior from the capital gains point of view.

Bonds and preferred stocks are, together with mortgages on real estate, the back-bone investments of insurance companies and savings banks and weigh heavily in the portfolios of trust accounts. Bonds are held in much larger amounts than preferred stocks wherever, as in insurance, fixed maturity and interest rates enter into the calculation of probable dollar claims on the companies or trusts.

Pension funds hold varying amounts of commons, preferred stocks, and bonds. The more conservative the management, the larger the proportion of preferreds and bonds. With the inflationary surge of recent years the common stock holdings have increased substantially but I believe gen-

erally remain somewhat below 35% of the total.

The endowment funds of educational institutions also hold large amounts of bonds and some preferreds. I believe they, together with mortgages, constitute about 50% of the total investment.

Preferred Stocks are often desirable to corporations since 85% of the dividends are tax free to the corporate holder.

The problem of investing is so complex, individuals usually realize the fallibility of human judgment. In an effort to offset our lack of omniscience it would seem wise for each of us to diversify our funds over the investment field into cash, insurance, real estate, bonds, preferred stocks, and common shares. There are times when each of these will prove itself comforting, to say the least.

Some of the mutual funds, recognizing these principles, have attempted through the selection of bonds, preferreds, and commons, to supply a complete investment program through the medium of one security. Many banks, in their trust departments, have created funds a participation in which provides similar diversification, stability and through the common stock portion reasonable opportunity for profit.

Of course, one must realize that diversification is not the answer to all problems. Changing conditions require constant supervision with resultant shifts in proportions of types held and dictate changes in individual holdings.

Government Bonds, and by this I mean the issues of the United States and Canada, are held in huge amounts by all kinds of institutions and individuals. United States bonds due to be paid in five years, or less, fluctuate comparatively little in price and are the particular investment favorites of commercial banks. For example, a one per cent change in a 4% bond due in 5 years equals \$43.80 per \$1,000. A similar change in a 20 year bond equals \$131.20 per \$1,000. When requests for business loans are very great, as at present, banks must sell their bonds. This is the time that short term obligations prove their usefulness and allow

the banks to serve the monetary needs of their communities with the least harm to themselves.

Municipal Bonds cover an enormous field. There are many classifications. For example, there is the general obligation of a city, county, or state which is backed by the entire taxing power of the borrowing entity. Then there is the revenue issue such as the kind secured by the town's electric or water plant and which cannot fall back on the general taxes as a bulwark is the electric or water revenues are not sufficient to supply debt interest and amortization of principal.

A third popular group comprises the bonds of express highways, bridges and parking authorities. We have examples of these practically at home in the New Jersey Turnpike, Delaware Memorial Bridge, and Wilmington Parking Authority.

The revenues of such facilities must be looked to for all charges. New Jersey, Delaware, and the City of Wilmington have not pledged their credit to safeguard the issues.

All Municipals are free of federal income tax and of the state income tax where the issuer is domiciled. As a result they are principally attractive to the rich individual who thereby retains a substantial net return on his investments often far above that available from other securities. However, the recent upward movement of money rates has caused severe declines in quoted prices, indicating here, as elsewhere, in bonds and preferreds the effect of changes in money rates.

In a few minutes I have tried to touch upon the vast subject of Senior Securities. Perhaps a good thing to remember about them is that they have often provided to the investor current income, greater stability, and greater dollar safety than that available in common stocks. To the man with an idea, whose business needs are beyond his material resources, they have provided the sinews of growth.

CHAIRMAN LOVETT:

Thank you very much, Mr. Winchester. I think you have covered the field of Senior

Securities very fully and thoroughly. We will withhold asking any questions, which I hope you will ask a little later, until the other gentlemen have had an opportunity to explain their features of investment.

You know, in the investment field you get some very polished terms for the same thing, but we used to say that we had an old-fashioned depression. Then we got to the polished term of a deflation. And now we talk about a rolling readjustment. Gentlemen, they are all the same thing, in different degrees, perhaps. I am sure that you are going to be interested very much in the next speaker's remarks, and in introducing him I would like to mention that my eye caught an advertisement as I came through the arcade of the Du Pont Building today. There was a very pretty tree with green leaves, and on each of the leaves there was a dollar mark. Up at the top it said, "It doesn't grow on trees but it can grow." And then underneath it, it had "Laird, Bissell and Meeds".

Now, that is a terrible way to introduce the next speaker because I think he is going to talk on somewhat that next subject. He is a representative of Laird and Company. So I take great pleasure in introducing Mr. Josiah M. Scott, of Laird and Company, who will talk on Common Stocks, or the Junior Securities.

COMMON STOCKS

MR. JOSIAH M. SCOTT:

Before I start on my prepared text I might mention the fact that amongst doctors and other professional people there is a great weakness toward being sold securities. What this adds up to, gentlemen, is doctors are considered some of the greatest suckers for salesmen and particularly securities salesmen in the country. We try to rationalize this by stating, of course, they are so busy with their own work and their own reading that they don't have much chance to study financial problems. Maybe this is true, but nevertheless it seems that doctors, instead of buying things, are often sold them.

Any of you today who are not certain of the benefits of common stock ownership

should not feel embarrassed. A recent survey by the New York Stock Exchange revealed that only 23% of the adult population could correctly define a common stock. But there has been a definite trend in recent years by the American public in the realization of the value of common stock ownership.

After lagging for a number of years, investments of individuals in common stocks are beginning to catch up with the growth shown by other outlets for personal savings, such as U.S. Savings Bonds, life insurance and savings deposits.

Furthermore, through the steady progress achieved in widening the ownership base, security investments are no longer regarded as a vehicle reserved for the very few or the very wealthy. Now, you seldom see a capitalist pictured in cartoons as a bloated character with dollar signs patterned in his clothing.

In today's "people's capitalism" American industry is owned by persons in every walk of life, in every occupation, and in every section of the country. Main Street rather than Wall Street more nearly typifies today's roster of security owners. However, there still is need for further broadening the ownership base of American industry as is attested to by the fact that only one out of six professional people are owners of common stock.

Why should there be a further broadening of the base of security, ownership? First to the individual the advantages may be summarized as follows: First, the realization of a relatively high income return. Second, the protection of the purchasing power of his dollar in times of inflation. Finally, participation in the long-range growth of the American economy.

Business managements as well welcome a growing list of stockholders. In the decade ahead it is expected industry will need to sell tens of billions of dollars worth of new shares to raise capital for expansion and modernization if it is to expand along with the country's population. This essential new capital is greatly facilitated by a growing list of new stockholders. Of course,

this also leads to use of company products by stockholders, strengthening the business picture. But to the nation at large, the major benefit is that the closer association of personal interests with business leads to a better understanding of our capitalistic system.

Let us now look at common stocks themselves in more detail. Unlike bonds, which are evidences of debt, stocks represent the ownership of a corporation, and are known as equity capital. Stocks give the owner a position similar in many respects to that of a general partner, without being subject, however, to the unlimited liability inherent in a partnership.

As owner of a share of the business, you are entitled to elect Directors, to vote on certain other matters, and to participate in the distribution of earnings after all prior charges, such as bond interest and preferred stock dividends, if any, have been met. Common stock owners bear the greatest risk, but on the other hand, are in a position to reap the largest profits.

The average corporation plows back a portion of its earnings into the business. In recent years, the typical company has re-invested almost 50% in this manner. Of course, this increases the value of a share of ownership in the business and consequently the value of the stock held of such companies. The remaining profits are distributed in the form of dividends.

There is nothing static about dividends. In good years the regular rate may be increased or extra dividends declared; in bad years dividends may be cut or even omitted. However, in recent years the trend of dividends on representative industrial stocks has been steadily upwards. Stocks today returning 4% or 5% may well produce returns of 10% to 15% in the future on the present cost.

Dividends are an important factor influencing the market. So are earnings. But there are numerous other elements that may induce investors to buy or sell stocks. Their opinions may be influenced literally by anything from the state of their digestion to a crisis abroad. Facts sway them

but more importantly, so do fears, hopes and their appraisal of the future and the past. Some analysts consider investor psychology to be of the utmost importance in predicting market action.

I have stated that common stocks may provide present as well as future relatively high income returns, but let us now turn to two other important reasons why every doctor should have common stocks in the investment program that he or she sets up.

A major advantage which common stocks have over bonds and preferred stocks, as well as savings accounts, is that they have provided a means of participating in America's economic growth. The average holder of common stocks has been well rewarded in recent years. Stock prices have approximately doubled since 1953, while dividend payments have increased more than 30%.

In contrast to this performance, bonds represent debt, and debt has two basic disadvantages. In the first place income is fixed and the owner cannot participate in the research developments which an aggressive growing company might produce. For example, the owner of a 3½% debenture of General Electric has no opportunity to participate in the fine research results produced by G.E. scientists. When the company's growth and superior management results in improved earning power and balance sheet position, it may either pay the bondholder off more rapidly than expected, or refund him at a lower interest rate. So the debt holder has the possibility of losing everything, 100% of his principal, should the company collapse, and very little to win, with interest rates of 3½% to 5%.

It is true that common stocks would also reflect any major setback in the economy, but the weight of present evidence strongly suggests that a sustained period of prosperity lies ahead. This may surprise some of you with recent weakness in the stock market and business sentiment supposedly at a low ebb.

To be as practical as possible in interpreting the present business situation, we probably should reconcile ourselves to the

fact that we are in the middle of a transition from an inflationary condition that could not continue without serious trouble, to some less active condition that, it is hoped, will resemble sound economic growth. Some of the current developments clearly have deflationary implications and they create a fear that termination of inflationary excesses must necessarily dictate the initiation of deflationary excesses. However, the business pattern as I see it does not call for a depression. Rather the prospect suggests a less dynamic business atmosphere than we have become accustomed to in the past five years or so.

I envision a period which, in retrospect, will be looked upon as a much needed area of consolidation that should prepare a sounder base for the ultimate resumption of the economy's growth, but a period during which some companies and industries will do poorly, while others are doing reasonably well.

Looking further ahead, it is hard not to be enthusiastic about the future growth of our country's economy. Even though the national economy for the next year or so will be moving sideways at a high level, it should not be too long before it resumes its upward climb.

There are many long term forces at work to reassure us as to the underlying strength of the economy. They are: The needs of a growing population; the conduct of research and development on a large scale; the rising levels of income associated with advancing technology; greater productivity and energy per capita in our nation; and finally, the tremendous opportunity offered by worldwide industrialization.

Let me shift now for the moment from the future to the present stock market picture and the opportunities it presents. We have all read in the papers and heard on the radio and television of the recent drop in the stock market. Rather than be depressed by these events, caused by investor anxieties and uncertainties over the national business picture and a complex international scene, investors should welcome these opportunities to acquire greater values in

stock purchases than have been available for many months.

Probably one of the best ways to invest one's money and not be disturbed by market fluctuations is through a system called dollar cost averaging. In its practical application, the investor periodically invests a given amount of money in the common stock which his analysis indicates as the most suitable for his portfolio at the moment.

We could more formally define dollar cost averaging as an automatic capital accumulation method that provides for regular purchases of equal dollar amounts of securities and results in an average cost per share, lower, than the average price at which purchases are made. This is caused by the fact that by investing an equal amount of money on an annual basis, we are able to buy fewer shares which cost more when the market is high than a greater number of shares which would cost less when the market is low.

This may seem complicated but what it illustrates is that the most important part of any investment program in common stocks besides careful selection of the stock to be bought, is to possess the will power to see any program through, regardless of the market level. We can ignore market fluctuations and use falling markets to our advantage if we will stick to regular periodic purchases, confident that the long term trend is toward growth of our economy and higher stock market averages in the years ahead.

This now brings me to the final advantage of common stock ownership that I shall discuss today. Closely related to the fact that common stocks give us participation in the long range growth of the American economy, is that they also provide protection of the purchasing power of the investor's dollar.

There is perhaps no perfect hedge against inflation, but common shares have outstripped virtually all other investments in providing such protection. Funds invested in bonds, share, with such fixed value investments as life insurance and savings de-

posits, the danger that future inflation may dissipate some of their ultimate worth. Thus if money invested today in any of these media is withdrawn at a time when the purchasing power of the dollar has declined to, say, 80¢, in terms of present-day prices, the investor will have lost 20% of the purchasing power of his original principal.

Conversely, deflation of the value of the dollar will proportionately benefit the investor in fixed income and value securities, since he will be paid and possess money that will have a purchasing power greater than the dollars he originally invested. At first glance it would appear that the normal fluctuations of money values would cause the periods of inflation and deflation to practically balance the worth of these fixed income-value investments during any average span of years. Statistics reveal, however, that the long term trend of this country's currency valuation has evidenced a progressive inflationary tendency from the time our government first issued money.

Following the accelerated inflationary periods produced by wars and booms, compensatory recessions have temporarily adjusted currency values upwards, but the ultimate trend has always been toward a gradual decrease in the purchasing power of our dollars. Why does our country's economy seem to have a built-in inflation rate which results in a steady drop in the purchasing power of our dollar?

For instance, during the past ten years the purchasing power of the dollar has declined 34% compounded annually. Our Puritan-Yankee heritage dictates that we be prudent, that we save for our old age, that we provide for our own security.

Security, indeed, is the theme of whatever instructions on personal money management were handed down by our forefathers. Yet we live in a society that demands exactly the opposite. We live under a system which calls for full employment. This is an accomplishment which can be attained only if we continue to be a nation of buyers and suppliers. On the basis that the more we buy the more we will have to supply, thus achieving fuller and fuller em-

ployment, we are discouraging, perhaps dooming, the practice of thrift.

All indications are for long pull inflation during the years ahead. What other conclusion can we reach when it is apparent that powerful unions are to continue in their demands for higher wages, that Government spending is to continue at high levels and gradually become higher in order to provide for the needs and defense of our nation; and further we see the control of the nation's money supply influenced by politicians who are anxious to supply easy and quick credit to those whose immediate salaries and income do not provide sufficient funds for a desired standard of living. When we look at the statistics of what has happened in the past we can all too easily realize what the future holds as these trends continue.

Suppose you had deposited \$10,000 in a savings bank in January 1942, at an interest rate of, say, $2\frac{1}{2}\%$ annually. That investment would still be intact, but the \$10,000 would be worth only \$5,500 in present-day purchasing power. Moreover, the annual interest of \$250 would have shrunk to \$137.50 in terms of today's prices.

On the other hand, a \$10,000 commitment in Industrial common stocks would currently have a market value of almost \$57,000 or \$31,350 adjusted for the intervening change in the value of the dollar. Meanwhile, average dividends per share have increased from .67¢ to \$2.00, meaning that the annual income of \$748 received in 1942 has grown to \$2,234 or to \$1,229 in present-day buying power.

Thus where common stocks would have protected you against inflation with a generous margin to spare, the savings bank deposit or the investment in bonds would have resulted in a loss of 45% in purchasing power both on the original capital and in current annual income. I think those figures speak for themselves.

But regardless of the foregoing statistics, it should not be forgotten that fixed income and value investments along with a home, insurance and saving reserves, fulfill an im-

portant role in the overall investment program of a doctor. There is risk in any investment philosophy. Insurance is tied to bond values and the values shrink so greatly during inflation that there is danger of substantial capital loss. But there is also the danger of substantial loss in growth stocks during deflation.

Many of the statistical examples in this paper have been based on total reliance on one type of investment media for illustrative purposes. The man who has invested all of his capital in one type of investment will ultimately run the greatest risk of all. The mistake is thinking only in terms of making a lot of money or of attaining a lot of security. What all of you need to do is to first examine your investment goals and then through a balance of varying investment media seek these goals.

Any of you could conceivably have personal reasons for employing varying types of investments, each of which possess their own advantages. Through Bonds you are promised a fixed rate of interest throughout both good and bad years. You are also promised the ultimate return of your investment. For some of you these facts are essential. The common stockholder's monetary returns depend on earnings. Their quoted prices are subject to the unpredictable fluctuations of the stock market, and consequently the purchaser has no assurance that he can ever resell any given share at a price as high as he paid for it.

Any stockholder should be able to face this fact with equanimity before investing his money. However, to balance the handicap of this vulnerability of their market price under adverse conditions, the owner of sound common stocks is in a favorable position to benefit from any future prosperity and growth of our nation. Their chief advantage over fixed income and value investments is their potential for advancing in value during periods of inflation.

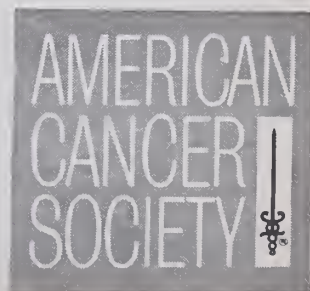
I have previously discussed the progressively decreasing purchasing power of our currency when gauged over long periods of time and its deteriorating effect upon the money invested in insurance, savings accounts, bonds, and similar media.

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1. Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.



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By contrast, common stocks have exhibited a tendency to appreciate in value during inflationary periods, and this appreciation, in most instances, has more than compensated for the concurrent loss in the purchasing power of the dollar.

I should like to conclude with a reminder that some stocks are much more conservative investments than some bonds. Some bonds are more speculative than some stocks. Each security must be examined on its own merits and conditions surrounding these always should be investigated carefully.

CHAIRMAN LOVETT:

Thank you very much, Mr. Scott. Mr. Scott had a subject which permits of greater deviations than Mr. Winchester had, and I was rather amazed when he informed us that doctors were the major suckers in the selling of stocks. You know, I had thought for a long time that educators were the class that really got hit the hardest. But you know, after going through the depression of 1929 and then the recession, I think we called it at that time, in about 1933 or '34, I am absolutely sure that there are more suckers among the bankers than any other class of people. I gave you as an illustration the advertisement that is used by Laird, Bissell and Meeds and the dollars representing leaves.

Now I think we are going back to a field where we might refer again to that illustration and say that there are some lands and fields that are more fertile for the production of the trees that grow the dollars. We have with us Mr. Arnold Goldsborough, who has been a realtor in this city for quite a long time, is very well versed on the subject, and he is going to tell us something about investment in real estate. I presume at the same time he might also speak on some of the investment features in mortgages secured by real estate.

REAL ESTATE

MR. ARNOLD GOLDSBOROUGH:

In selling investment real estate, I always remember what someone told me years

ago, that the right investment in real estate is equal to a lifetime of toiling. How true it is. Many people have made the right investment in real estate. Today, they are living off the income, and will pass down their real estate holdings to their children. Many families inherit substantial fortunes in this way.

There is considerable romance in real estate too. I think any program should be well rounded out with savings, with stocks or bonds, and insurance. But in real estate, there is something that you handle yourself. You can watch it grow. You can develop it, and you don't sit helplessly by as the market crashes down around you.

In the past several weeks none of my clients became concerned and worried about the depreciation of their real estate. None of them came in to see if they had to place extra collateral in real estate for the mortgages that they owed, as those who owned stock had to do.

Some people say the disadvantage of real estate is its non-liquidity; you can't sell it quickly. I think that is one of the most stable things about it, that you can't go off a deep end, sell your real estate in a hurry, and regret your action in a few months or a few years. If it is a good piece of real estate, you can go to the bank and borrow on it.

The opportunities for wise investments in real estate exist today. They are around the corner, and for a busy doctor, are not always easy to see. My advice is to get a good realtor to advise you in making your investments.

What kind of investments can you make? Perhaps the simplest type is land. Land is a good investment. The value of land follows the growth of population. Just two years ago, land in Brandywine Hundred seemed very high at \$1,800 and \$2,000 an acre. Today \$3,000 and \$3,500 are considered a very fair price.

Some choice parcels, formerly selling for \$2,000 an acre, are bringing \$4,000 and even \$4,500 an acre.

Individuals, and especially real estate men, and builders have watched the growth

of a community, and the trend of population. They will buy the nearest vacant farms to a populated area, will hold these farms, and soon find they can sell them at a capital gains. The builder naturally uses his land for development. Often the owner of a farm, rather than sell outright, will go into a partnership with a builder. Beside making a nice profit from his land, he becomes a partner in the construction field, with new interests.

Contrary to all beliefs, there have been enough homes built for our growing population. The rental of apartment houses and private homes is a good investment. I think the young doctor who has bought his first house, in the ten to fifteen thousand dollar bracket, and plans to buy a higher priced home, should consider keeping the first property and renting it. He may find that the return on his investment will prove much better than the interest from a savings account.

Commercial opportunities are excellent. I am surprised at the chain stores that come to Wilmington to make offers on space and ground that we have available. We are now negotiating with various chain stores for several of our investors. After the building is constructed, they will have more than a fair return on their money. In fifteen years they will have paid off the mortgage on these buildings, and will then have a much greater return, and quite an estate to leave to their children.

I think we should also consider the newer type of buildings that physicians are using, the one-story, motel type structure where several doctors join together, perhaps forming a syndicate. Several are around Wilmington, and you may think further good locations are not available. I think there are several plots that are in especially good locations for doctors to consider.

For something that you do not want to bother with and have no management problems, try mortgages. Today's mortgage at 6% is a good investment—a \$10,000 mortgage will give you a \$600 a year return without very much supervision. Anything that has a bit of risk needs some manage-

ment. A mortgage requires as little management as you would want, and it is a very safe type of investment.

We find that many of the older families of Delaware have handed down mortgages, and I am thinking back twenty-five to thirty years. The same families holding mortgages in various parcels of property, when they are paid off, put the money back into another mortgage in another section of the city. And they are very well satisfied. In the depression some of them had to foreclose and take over the properties. But in taking over the properties they sold them later at a much larger price than their mortgage, and even took back a mortgage again on the same property, and made a profit on the foreclosure.

For those who have owned income property for twenty years, and have no more depreciation left in your building, I think there is a new field for you to consider. Postpone your profits by exchanging properties. Exchange your investment property for another building that would be considered an investment. You can then take depreciation on your new property and have tax free dollars in your pocket.

Undeniably a carefully selected parcel of income real estate, properly purchased and wisely managed, surpasses all other competitive types of investments.

CHAIRMAN LOVETT:

Thank you, Mr. Goldsborough.

I think perhaps that we may get the impression after a while you are going to have to have a lot of money to invest in all these fine investments that are available. But there is still one left, and that is the one where a dollar is always a dollar. I am sure that you will be interested in hearing a talk on insurance as an investment, after which I hope you will have lots of questions to ask. Mr. Edward G. Braun, Jr., District Manager for Delaware, of the Aetna Life Insurance Co. will make some remarks on that subject.

INSURANCE

MR. EDWARD G. BRAUN:

Perhaps it is ironic that the part played by insurance in the professional man's in-

vestment program should be the last vehicle introduced to you today. Perhaps this placement has been made because of the general concept that insurance is the stable, guaranteed, self-administering necessary base to the successful completion of your goals through the long range media of stocks, bonds, and real estate.

Life insurance is the beginning of any man's investment portfolio for it is the only known investment which creates immediately the estate a man hopes to accumulate as a result of his professional acumen, long devoted hours of work, and years of rewarding good health.

In its simplest form, life insurance is the only TIME insurance since it guarantees our wives and children the income they have every right to expect in the event of our death before we have had TIME to build the investment programs recommended to you by my panel colleagues. Therefore, life insurance was created to protect our greatest asset—the value of our human life. This is the paramount asset necessary to make possible all other forms of property we may wish to accumulate, yet it is the asset which is the most poorly insured.

Most doctors have insured their real estate against fire losses within 80% of the current market values, yet statistics show that only one in every 200 doctors will ever have a fire loss and if this loss does occur, it will be for only 15% of the amount insured. Most doctors have insured their economic value to their families, their potential earning capacity if they live—their greatest asset, for about 8% of its economic value. The Insurance Industry believes that this trend would undoubtedly be reversed if we put sirens on hearses instead of on fire engines.

Almost every doctor in this room has insured himself against the liability of professional malpractice, and the majority of the doctors have protection against suits brought against them up to limits of \$150,000 to \$300,000. The loss of a patient due to the misjudgment of a tired, overworked doctor is valued by the families of these deceased in terms of \$300,000. Few

doctors protect their own economic value to their own families up to these limits.

As an investment for our families, the estate creation features of life insurance can have a return of several thousand times the dollars invested. It is because of this feature that life insurance must be the base of your portfolio. It is for this reason that most stock market firms recommend in their publications that all investors start with an adequate minimum life insurance program.

The second major investment feature of life insurance is its inexpensive ability to conserve your estate which has been created through good income producing property in the forms of stock and bonds and real estate. It provides the best vehicle to transfer your estate to your family by producing the immediate quick cash assets necessary to pay estate probate costs, executor's fees, federal estate taxes and state inheritance taxes, etc. It can be the asset available for your executors to conserve the income producing property which should not be sacrificed to pay estate settlement costs.

The 1954 Internal Revenue Code has continued and increased certain tax privileges for life insurance proceeds. Consequently, many new trusts have been established with our responsible trust companies as executors using life insurance to fund these trusts. By giving up ownership of your present policies and by creating new policies on which you have never had "incidents of ownership", you can create the funds to pay the debts of your estate without having the proceeds included in your taxable estates.

However, the 1954 Code gives a big concession in the proper use of life insurance. Now a doctor can remove insurance proceeds from his taxable estate even though he continues to pay the premiums on the insurance. He must give away the policy, including all "incidents of ownership", such as the right to change the name of the beneficiary, and he must have less than one chance in twenty to regain the value of the policy. Formerly, the insurance proceeds would have been includable in the insured's estate if he directly or indirectly paid the premiums. Of course, if the insured dies

within three years of making a gift of his policy, his executor will have to prove that the gift was not made in contemplation of death to avoid estate tax.

The third major investment feature of life insurance is the very favorable treatment of the retirement income or annuity values made possible in the latest revision of the federal income tax laws. The 1954 Revenue Code completely changed the method of taxing retirement income resulting from regular annuities, insured retirement income or endowment policies, and the cash value of life insurance policies which the insured has elected to receive in the form of income. This new method, while more complex, is decidedly more equitable than the old method. In essence, the new law means this: the greater portion of each income payment is tax-exempt regardless of how long the individual lives. Thus, an individual can continue to receive tax-free income from, for example, a retirement income policy long after he has recovered the amount invested in the policy. Generally speaking, the amount of tax-free income is determined by dividing the insured's total investment in the contract by his life expectancy at the time he retires. Life expectancies are determined from tables issued by the Internal Revenue Service:

The provision for the special retirement income credit for physicians, based upon taxable retirement income, is another vital piece of legislation to be considered in your investment program. It was written into the law to give tax equity to those not eligible for tax-exempt Social Security income. Here's how it works. Against taxable retirement income up to \$1,200, a 20% credit is allowed to the retired individual age 65 or over. Income eligible for credit includes that which results from retirement income and endowment policies, life insurance cash values, and annuities. Also, eligible are interest earnings, rents, and dividends. The most the credit can be is \$240 (20% of \$1,200), and it is applied against the amount of income tax payable. The credit, however, is reduced if annual income in excess of \$1,200 is earned after age 65 and before age 72. After age 72,

earnings in excess of \$1,200 will not reduce a physician's retirement income credit.

Another feature of our Federal Income Tax provides double exemptions to us and our wives beginning at age 65. By incorporating this program with the new method of taxing annuity income and the special retirement income credit for physicians, it is possible for the doctor to receive \$10,200 annually of tax free retirement income beginning at his age 65.

Presuming the doctor should commence this program at his age 40, in addition to the \$10,000 tax free retirement income he will be protecting his own economic values to his family with these important corollary benefits:

- 1) At age 65, his total cash value will amount to approximately \$121,500—a gain of \$15,000 over his total investment—and by receiving his cash value in the form of income, he does not report this gain.

- 2) During his years of practice, he will have a guaranteed, constantly increasing, always available fund to call upon in times of emergency.

- 3) And, of course, if he does not live to retirement, \$75,000 of life insurance or the current cash value of his policy, whichever is higher, will help to replace his economic value to his family.

He will have made his TIME insurance his best investment for peace of mind while accumulating his estate. He will have the best means to conserve the other income producing property for his loved ones and heirs, and he will have the lifetime security of knowing that he can't outlive his \$10,000 annual retirement income provided by the annuity principle of life insurance—regardless of the fluctuations of the economic cycle during his happy retirement years.

CHAIRMAN LOVETT:

Thank you very much, Mr. Braun.

I realize these talks are technical in character, and I wish you would put some plain homespun questions to them right now.

May I entertain questions from the floor.

Let me start one off while you are thinking up one. I have one here that I thought might be of interest to you, and it is going to be for Arnold Goldsborough. What do you do to remove an objectionable tenant who is on a month-to-month lease, pays rent promptly but refuses to accept notices to vacate? Will you take that, Arnold.

MR. GOLDSBOROUGH:

Well, we have the courts to help us out in a case like that, and if we have an objectionable tenant, we go to the man who is not here today, and that is a lawyer, to prepare our papers, and take it to Magistrate's Court, and we have a case called holdover-tenant, and when you go to the Magistrate, when he will serve the paper—the Constables will serve the paper at the house, and the trial will come up in about five or ten days' time. The man can be smart enough to get a lawyer and have a postponement for about a week or two, and then probably a second postponement, but we have never gone past a second postponement, which means a month's delay, and then you have your trial. If he doesn't come to the trial you can get judgment and just evict him, break down the door, get in, move his things out on the street.

If he does come, the Court will listen to his side of the story, but the Judge will give you the property depending on the hardship of the case, may give the man two weeks, thirty days or sixty days to get out. I have known everybody to get out. The only trouble they ever had was with an attorney many years ago, Mr. Adaire; you may remember him. He stayed in a property years and years. But usually you can get someone out.

CHAIRMAN LOVETT:

Thank you very much, Arnold.

Any questions from the floor? Let's have some questions from the floor.

DR. GAY:

I should like to ask Mr. Scott about this process of dollar averaging, as a matter of buying common stocks as a hedge. It seems to me they are a hedge only when you

finally turn them into cash at such time as the market is very high.

Now, if you are about to do that, is it not an advantage to sell the stocks on a share average rather than a dollar average, turn them over to Mr. Winchester then and put them into bonds?

MR. SCOTT:

I will first of all tackle your question about dollar cost averaging. As a matter of fact, I jotted down an illustration just to show you how this is a check of mathematics as much as anything. But say you had monthly investments and were going to invest a certain amount of money each month and were going to do this over a period of time. Let's take a two-month example. You put \$1,000 in stocks these two months, one particular stock. The first month you do this, the stock costs \$100 a share—if you want to write this down as we go along—therefore you get 10 shares of stock at a cost to you of \$100 each, and that is your \$1,000 investment.

Now, for the second month the market is going down and the stock now only costs \$50 a share. You are investing another \$1,000, so you are putting in the \$1,000; that's \$50 a share, you get 20 shares. So now for the total of two months you have invested your \$2,000, you have a total of 30 shares. Your average price of the two stocks you have paid \$100 the first price and \$50 the second price, is \$75, and you have 30 shares costing \$2,000, so your average cost is now, it comes out \$66, \$67 a share.

So in effect as the market goes lower you are able to buy more shares at the lower cost, and therefore your cost averages down with the market. And if you can keep that up over a period of time you will have a lower cost per share than the actual average price you pay.

DR. GAY:

But you have to wait for the reversal of the trend to get your advantage?

MR. SCOTT:

If the market goes up, if the market stayed high all the time, that would work

against you. Does that answer your question all right?

DR. GAY:

Yes, that answers part of my question. The second part of my question is with regard to selling. Suppose you eventually wish to sell your shares which you have accumulated.

MR. SCOTT:

And you are averaging out on the way up so to speak. Is that what you mean?

DR. GAY:

Yes. When you sell, is it not an advantage to sell by share averages?

MR. SCOTT:

Yes.

DR. GAY:

Rather than the dollar average?

MR. SCOTT:

Yes. At certain levels of the market as it goes up, you could take equal amounts at certain plateaus and average up that way on the way out.

DR. BOINES:

Will you say something about the advantages or disadvantages of buying or selling stock before it splits, or is it better to buy it after it splits?

CHAIRMAN LOVETT:

I will turn that over to Mr. Scott.

MR. SCOTT:

That is a hard question from the fact that on the upward phase of a bull market very often the news of a stock split has led to greater appreciation of the stock, and formally on the announcement of a split there would be a lot of buying in the stock.

The company's argument on splitting stocks I think you find is that when the

stocks are high priced it limits public participation. People tend not to buy a stock that costs four or five hundred dollars a share, and you find your larger institutions are buying some of those shares. But once they are split up, say five hundred dollars a share is split ten for one, and it is brought down to fifty dollars, then there is greater public participation.

Now, the big stock, the most widely held public stock, is American Telephone which of course is priced fairly high, and there was recently a vote taken by stockholders, and they voted not to split the stock. And this belies this favorite theory that by splitting it it improves the marketability of the stock.

Now I have talked all around your question, and I won't give you a straight answer because I don't think anyone knows. Very often a stock will run up before a split, then actually come down much lower after it is split up because people decide to sell off a certain percentage of their holdings, and you might take a chance in the kind of market we have now of waiting until after the split and hoping the split shares may drop down a little bit and be able to get more for your money that way.

On the bull market on the way up when a stock was voted a split, it sometimes worked the other way. It would run up on split news and then stay up for a while. But normally it comes down after the stock is split.

So if I were to generalize I would say, whatever you do, don't buy on the news because very often then it is run up, and of course the value of a stock, or the earnings haven't changed any, and it is just for some reason people like the idea of getting more shares in their safety deposit box. But more often than not the stock will fall off in price and return to a more normal level after the split has been declared.

CHAIRMAN LOVETT:

Next question?

DR. CASCELLS:

Would you comment briefly on the formula used to decide whether or not a

stock is over-priced, earnings versus the stock market price?

CHAIRMAN LOVETT:

You seem to be getting all the questions, Mr. Scott. Mr. Scott, can you tell when a stock is over-priced with respect to its earnings?

DR. CASCELLS:

Yes. There is some formula I have heard of as to earnings.

MR. SCOTT:

There is a favorite rule of thumb that 10 times its earnings, in other words, if it earns say \$2.00 per share, that the stock selling at twenty of course is equal to ten times the earnings. Now, anything below ten times earnings is considered valuable.

Well, that is the roughest sort of generality because industry-wise, various industries, for instance, sell at various levels of the price of the stock times the earnings, and then beyond that who knows what the psychology is that stockholders or buyers for some reason will value some stocks at forty times earnings today, and tomorrow, because of some psychological change, they will not go near the stock at five times earnings. Of course your averages are priced at certain times earnings, and you can sometimes just from the nature of the market determine whether there are high or low price times earnings. But it is impossible to generalize.

FROM THE FLOOR:

Ten times earnings.

MR. SCOTT:

The figures for rule of thumb is ten times. That I have heard used as often as any. Maybe Mr. Winchester—

MR. WINCHESTER:

I think the ten times earnings rule was based on the theory that formerly companies would pay out about 60% of their earnings, and that would afford a dividend

equaling 6% of the purchase price. I think it was more or less related to that.

But I think it might be interesting for you to consider the case of Du Pont. It has sold over many years at an average price of 22 times earnings. So to try to get an idea of when you should buy Du Pont would seem to me to be rather unwise to wait until it got down to 10 times earnings. Now, of course by the same token perhaps when it is selling at 25 to 30 times earnings, as it sometimes has done, would probably be a warning to you.

I think that bears out what Mr. Scott said, that there are some securities that sell as many as forty times earnings, and a change in psychology makes a very different view in the eyes of the public as to what the proper multiplier should be.

CHAIRMAN LOVETT:

I think we will have to bear in mind that there is nothing that you can generalize on this subject because I have known a number of stocks selling at 8 times earnings and they should have been sold long ago or should be sold at the present time.

MRS. POLLAK:

Would you comment on Mutual Funds?

MR. WINCHESTER:

I think Mutual Funds as a whole are all right. I think that you take, for instance, some of those that we know best, like the Massachusetts Investors Fund, the Wellington Fund here near at home, and many of those are very conscientiously managed. They attempt to use all kinds of services, all the information they can possibly get, to bear on the subject at hand, and I believe that a person who has no specific knowledge of stocks might do very well to consider them. They are perhaps not for the person of large means who has any professional knowledge of stocks, but for the person who wants to put away a certain amount each year perhaps they are very good.

MRS. POLLACK:

Are there any drawbacks?

MR. WINCHESTER:

Yes. I think there are drawbacks. Many people don't like the loading fee that is in them. For instance, if you buy a Mutual Fund that sells, we'll say, at twenty-five, you will find that the actual liquidating value of that Mutual is probably only around twenty-three and a half to twenty-four.

Now, a lot of people feel that is a very large amount to pay out. Well, of course the answer of the Mutual Fund people is that that allows them to pay the broker to sell it, and there is then no commission paid when the security is sold.

It also allows the Mutual Fund to make a profit and to establish a large organization to manage all the details that go with investment problems. That is one of the drawbacks that I see. There are some Mutual Funds that—well, I would hardly call them Mutual Funds, but there are some investment trusts that even sell at a discount below their liquidating value. But in some cases that is due to the fact that there is leverage in them. That means that there is prior senior capitalization. And when you have a large decline in stocks, the amount that is attributed to the common, or can be attributed to the common, declines so rapidly that the common loses value. But that is a pretty involved situation to try to explain.

You see, Mutual Funds really started in Scotland, and I believe the experience over there has been quite wonderful over a period of many, many years. And then they became fashionable in this country probably about thirty years ago, and some of them weren't so well thought out. But I think by and large many of them are excellent things to have, particularly if you haven't a great amount of investments to diversify with.

I think Mr. Lovett as a trust officer might comment on what he feels about those.

CHAIRMAN LOVETT:

I think as you do, George, that some of the investment trusts are very sound,

where you are not particularly interested in meeting more than an average security situation. I do think there is another class of securities very akin to investment trusts which you might consider, and that is the insurance company stocks, where they draw their revenues from two sources, the underwriting revenues and also large portfolio of diversified investments, and I find that they have very fine investment counsel. I think Mr. Braun will bear me out on that.

I would like to ask one question of Mr. Braun, so he has something to answer here, and one he may have trouble answering. Listen carefully to this situation.

I am thirty-five years of age, have a wife thirty-three years of age, and two children, a girl twelve and a boy ten. My professional income grosses \$30,000 a year. My assets aside from my home amount to about \$25,000. How much life insurance should I have and what kind? I am going to leave this card here for you to read.

MR. BRAUN:

The best answer I can give this man is I would like to see him for a couple of hours in his home, or office.

There is a reference here first of all to a professional man's income, and I have found in talking to a number of doctors who do not have the death advantages that the Social Security program gives us, that they don't realize the amount of life insurance that would be necessary to create the same death advantages, that is, to our survivors, under the Social Security program.

A man in this position who has two children would probably get in return, that is, his family would get, not referring to his retirement benefits on Social Security, would probably get a little over \$33,000 worth of benefits, because if this man were to die now at his age 35, with two children, his widow would receive \$200 a month until the oldest child is 18 years of age, and then that would be reduced to \$168 a month until the younger child, which was ten, had reached age 18.

To use the same optional modes of settlement of life insurance to provide that would

require \$33,000 of base. If a man had younger children, the maximum amount of income which is received by the survivors from the Social Security program is about \$56,000. So that if a young doctor who had small children, very small children, were to die without the Social Security benefits, he would have to have \$56,000 worth of life insurance to produce the same income that the person insured under Social Security might have.

Using that as a base in this particular man's problem, we have to determine now how much insurance of course is necessary in this man's case. The professional income, of course, grossing \$30,000 a year is probably something like three times the amount of income that is necessary to provide the adequate standard of living for his family in the event that he is not around to continue building his estate. So that if an insurance program were going to produce an income of, say, \$7,500 tax free for life for his family at his particular age, ignoring the home which they say is worth \$25,000 but is not an income producing property, if the family would remain in the home, this man would probably need as a minimum situation about \$150,000 worth of life insurance.

Now the question as to what kind is necessary of course is one of those things that there are many arguments about. The least initial outlay type of insurance anybody can buy is the term insurance. Now, of course that is the most expensive life insurance program if you live because that is like renting protection. Term insurance is the same principle as your automobile insurance, or your fire insurance. You are paying for a term of time, and if you don't have an accident in your automobile or if you don't have a fire in your house you have paid for the peace of mind, but there is no return.

Term insurance is doing the same thing on your life. You are renting the protection in the event that you don't have the claim.

On the other hand, if you think of the living values of life insurance, which is the net cost, by paying for more permanent in-

surance, ordinary life, limited payment life, or one of the endowment or retirement plans, the net cost of the protection if you live of course gives you a return over and above what you paid in premiums.

So that it is a case of you deciding which you think your odds are. I personally think, and statistics in our own industry prove, that term insurance is a bad investment, and they are a bad investment for this reason: Two out of every three doctors, as well as other people, live to reach age 65. Now, because none of us know which ones of us that will be, we buy life insurance, but we are betting against the very fine investment portfolios they have just referred to that the insurance companies have when you are buying term insurance, which increases in cost, of course, the older you get.

Probably the final decision as to how much or what kind of insurance you should have should depend on how the cost of the insurance should fit in with your total investments. Obviously a man who is making \$30,000 a year is way beyond the minimum income situation, and that man should be having a very definite established investment portfolio that includes insurance as well as all of the other fine income producing property discussed here so far.

CHAIRMAN LOVETT:

Thank you very much, Mr. Braun.

I want to ask each member of the panel one question—we are close to the end—and I want them to answer yes or no. I am going to start with George Winchester.

In your opinion do you feel that an investment program would produce better overall results if I used a broker, bank or professional investment counsellor than to attempt to manage my own portfolio? I like to read the financial papers and watch the board in a broker's office but I don't seem to find enough time to do a thorough job; yet I am intrigued by the subject. Shall I surrender all interest and pass the buck to somebody else? George, yes or no?

MR. WINCHESTER:

What is the last thing?

CHAIRMAN LOVETT:

Should I surrender all interest and pass the buck to someone else?

MR. WINCHESTER:

I can't answer that yes or no.

CHAIRMAN LOVETT:

How about you, Jay?

MR. SCOTT:

I would have to generalize.

MR. BRAUN:

I cannot answer yes or no.

CHAIRMAN LOVETT:

I will say create an agency account with a bank.

DR. FRELICK:

I think Mr. Braun made a very interesting point, which is quite important to many of us. As you well know, the doctors are the only group not included under Social Security. I would be interested in the panel's feelings about this subject. Are we being foolish in not being under Social Security? And if so, what arguments can those of us who would benefit the most use to persuade the older doctors that we should be?

CHAIRMAN LOVETT:

I take it from your remarks that there is a difference in the ranks of the doctors themselves on the subject.

DR. FRELICK:

Yes.

CHAIRMAN LOVETT:

I am afraid we couldn't answer that. But I think that we would all say that we would be delighted to have the doctors participate in the benefits of the Social Security Act.

MR. WINCHESTER:

Why don't they? Is there any reason why they don't?

DR. FRELICK:

The only reason I have heard is that the older doctors feel that they would like to work after retirement and would therefore not receive the benefits if they didn't work after retirement and die beforehand. Therefore they wouldn't get them.

MR. BRAUN:

May I suggest one of the arguments that has been presented very forcefully by your own association is that in the Social Security Law as now set up there is a definite legislative increase in the tax to pay out eventually these benefits that are continuing to increase. Now, doctors have the same status as professional men, would have the same status under the Social Security Law as any self-employed individual, which means that as an employee of a company I am only paying one-half of my tax and my employer is paying the other half. And today I am paying my half of the tax which is two and a quarter per cent. As that projection goes on, as it is written in the original law, that tax is going to be four or five times, and it is going to have to be four or five times that amount.

So the professional doctor has said, let's look at the time when we are going to have to pay those higher taxes, without having the advantage of having some employer share the cost with us. And they think that they can do better with their funds by taking advantage of this retirement income credit, for example, that has been written into the law to give the doctors a certain advantage at retirement. That doesn't give the estate the advantages of life insurance, but it does give that particular advantage. And that is one of the reasons and the main reason that the American Medical Association as a rule has been opposed to being included under the Social Security program. And that would become very costly if it projects into 1990 as expected.

CHAIRMAN LOVETT:

Thank you very much.

Dr. Washburn, do you have a question?

(Continued on page 24)

+ Editorials +

MEDICAL ECONOMICS

The recent reader's poll conducted by The Journal disclosed two interesting facts. The majority of those who answered the questionnaire are regular readers of the New England Journal of Medicine. They desire that the Delaware State Medical Journal publish articles concerned with business in general as well as the business side of medicine.

Independently, President Murray ar-

ranged an outstanding program for the Annual Meeting. Papers on business subjects presented by prominent Wilmington businessmen were featured.

We are happy to present in this issue the symposium "The Doctor's Investment Program". It is hoped that this will be the beginning of a series of articles on business subjects. This is *your* Journal.

ARTERIAL HYPERTENSION

Since the acceptance of the sphygmomanometer into clinical medicine over fifty years ago, elevation of the blood pressure has become a subject of increasing and major importance. In this time, little progress has been made in its treatment. With the exception of those few individuals in whom a cause can be discovered and remedied (coarctation of the aorta, pheochromocytoma, unilateral renal disease, Cushing's syndrome) the treatment has for the most part been symptomatic and unsatisfactory.

Thirty years ago it was demonstrated that limitation of salt intake was beneficial in this condition. Because of various factors, however, this method was not considered to be satisfactory. Recently, a combination of laboratory and clinical investigation has resulted in a simple practical means of lowering the blood pressure through utilization of this basic principle.

The Journal is happy to present an early evaluation of this method.

DR. WASHBURN:

Mr. Chairman, I would like to say to this group that in the Journal of the American Medical Association for this week this subject is discussed fully and the reasons why organized medicine is opposed to being required to come under the provisions of Social Security are, first, that anyone who is a Doctor of Medicine may elect to put himself under the provisions of Social Security if he so desires. That is one thing. Well, that is a statement in itself.

Secondly, that the overwhelming reason why the American Medical Association and by action of its House of Delegates on more than one occasion, and by action of the Board of Trustees has voted against it, is that in general the American Medical Association considers that Social Security is one more of these very powerful weapons which eventually is going to take us as a people into a socialistic state.

Now, these other reasons that have been advanced by doctors is that first of all if they are compelled to participate under the rules of Social Security, as a practical matter they will be adversely and inequitably affected financially because, as a practical matter, most of the doctors who do survive to 65 and older continue to practice and therefore will be compelled to pay the rates and not be permitted to reap the benefits which are available to those who have been in industry. Those are the financial reasons.

But the underlying reasons are as I have expressed, that we feel, and I agree, that this represents that which has been done in other countries and has inevitably led them toward that which we feel is some-

thing which we wish to avoid in our country.

Thank you, sir.

CHAIRMAN LOVETT:

Thank you. I believe if I am not mistaken that the Ministers of the Gospel have the right to make a choice now of their own as to whether or not they go in or stay out. And I presume that is what you mean, that the option could be left to the doctors.

MR. WASHBURN:

Yes.

CHAIRMAN LOVETT:

But not to make it compulsory for the whole profession.

MR. WASHBURN:

That is it.

DR. FRELICK:

Are the bankers included and if so are they fearful of socialism?

CHAIRMAN LOVETT:

Yes, we are included in the Social Security Act, not by reference to ourselves but automatically. We are all under the Social Security system, and are contributors as well as beneficiaries.

I don't think the subject of the reach of government, which is of great concern to the bankers, by the way, in all of its aspects, was particularly a subject for consideration in that respect.

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In extensive clinical trial Dartal caused no dangerous toxic reactions. Drowsiness and dizziness were the principal side effects reported by non-psychotic patients, but in almost all instances these were mild and caused no problem.

Specifically, the usefulness of Dartal has been established in psychoneuroses with emotional hyperactivity, in diseases with strong psychic overtones such as ulcerative colitis, peptic ulcer and in certain frank and senile psychoses.

Usual Dosage • In psychoneuroses with anxiety and tension states *one 5 mg. tablet t.i.d.*
• In psychotic conditions *one 10 mg. tablet t.i.d.*

NOW, FROM ROBINS, A NEW AND UNEXCELLED ANTI HISTAMINE

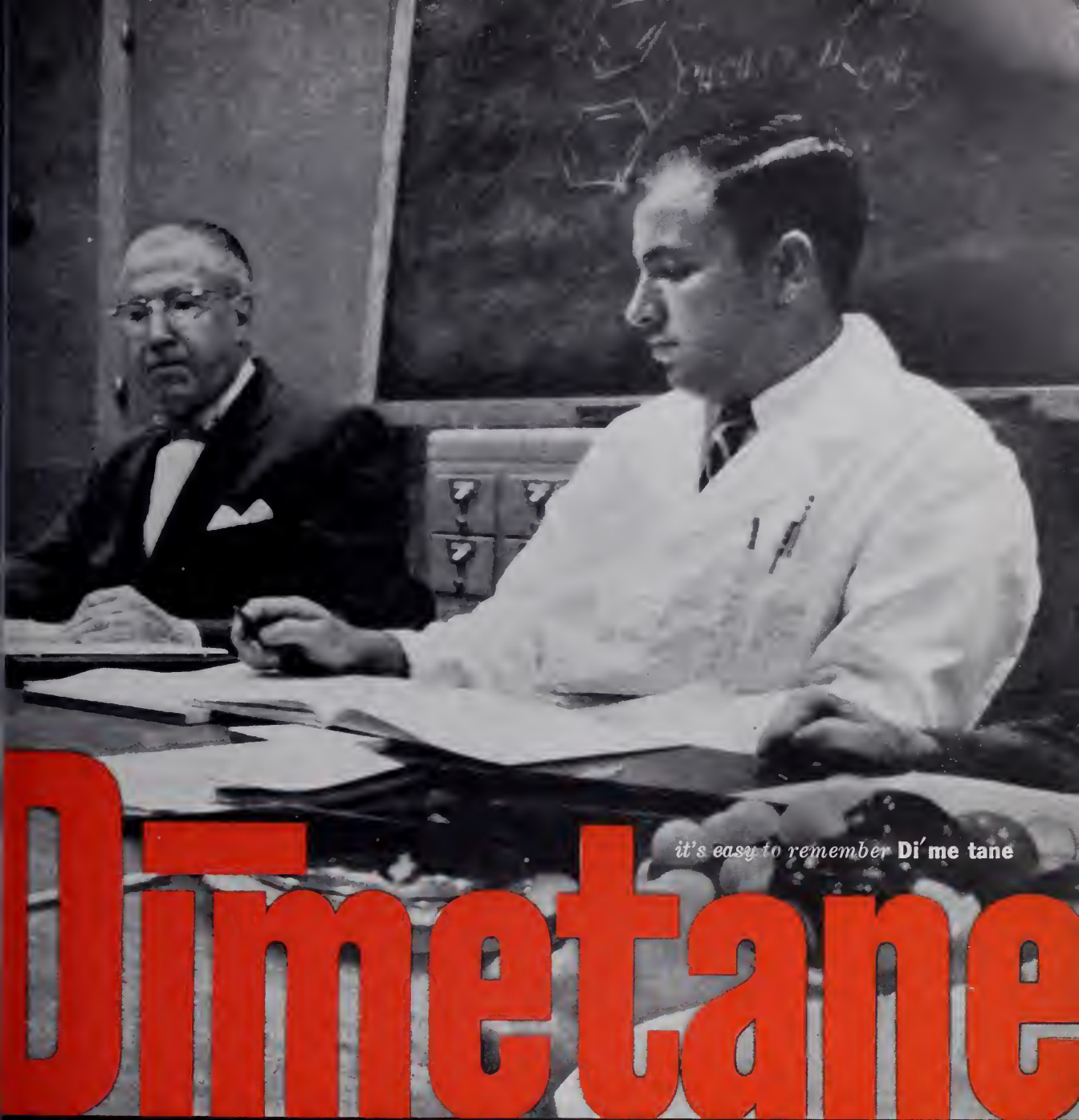


why **Dimetane** is the best reason yet for you to re-examine the antihistamine you're now using » *Milligram for milligram DIMETANE potency is unexcelled.* DIMETANE has a therapeutic index unrivaled by any other antihistamine—a relative safety unexceeded by any other antihistamine. DIMETANE, even in very low dosage, has been effective when other antihistamines have failed. Drowsiness, other side effects have been at the very minimum.

» **unexcelled antihistaminic action**

Diagnosis	No. of Patients	Response				Side Effects
		Excellent	Good	Fair	Negative	
Allergic rhinitis and vasomotor rhinitis	30	14	9	5	2	Slight Drowsiness (1)
Urticaria and angioneurotic edema	3	1	1	1		Dizzy (1)
Allergic dermatitis	2		1	1		Slight Drowsiness
Bronchial asthma	1		1			
Pruritus	1		1			
Total	37	15	13	7	2	Drowsiness (5) 16. Dizzy (1)

From the preliminary **Dimetane Extentabs** studies of three investigators. Further clinical investigations will be reported as complete.



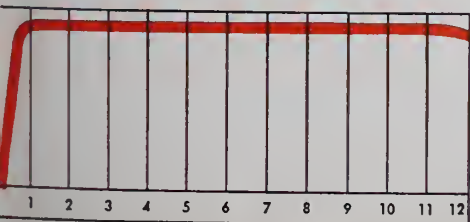
it's easy to remember **Dí me tane**

Dīmetane

DANE® EXTENTABS® TABLETS ELIXIR

DIMETANE IS PARABROMOXYLAMINE MALEATE — EXTENTABS 12 MG., TABLETS 4 MG., ELIXIR 2 MG. PER 5 CC.

a blanket of allergic protection, covering 10-12 hours — with just one **Dīmetane Extentab** » **DIMETANE Extentabs** protect patient for 10-12 hours on one tablet.



Periods of stress can be easily handled with supplementary DIMETANE Tablets or Elixir to obtain maximum coverage.

Dosage:

*Adults—One or two 4-mg. tabs.
or two to four teaspoonfuls
Elixir, three or four times daily.
One Extentab q.8-12 h.
or twice daily.
Children over 6—One tab.
or two teaspoonfuls Elixir t.i.d.
or q.i.d., or one Extentab q.12h.
Children 3-6—½ tab.
or one teaspoonful Elixir t.i.d.*

A. H. ROBINS CO., INC.



Richmond, Virginia | Ethical Pharmaceuticals of Merit Since 1878

who coughed?

**WHENEVER
COUGH THERAPY
IS INDICATED**

Hycodan[®]

(Dihydrocodeinone with Homatropine Methylbromide)

- Relieves cough quickly and thoroughly
- Effect lasts six hours and longer, permitting a comfortable night's sleep
- Controls useless cough without impairing expectoration
- rarely causes constipation
- And pleasant to take

Syrup and oral tablets. Each teaspoonful or tablet of Hycodan* contains 5 mg. dihydrocodeinone bitartrate and 1.5 mg. Mesopin.† Average adult dose: One teaspoonful or tablet after meals and at bedtime. May be habit-forming. Available on your prescription.

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ENDO LABORATORIES
Richmond Hill 18, New York

* U. S. PAT. 2,630,400

† BRAND OF HOMATROPINE METHYLBROMIDE



symptomatic relief... plus!



Achrocidin*

TETRACYCLINE-ANTIHISTAMINE-ANALGESIC COMPOUND

ACHROCIDIN is a well-balanced, comprehensive formula for treating acute upper respiratory infections.

Debilitating symptoms of malaise, headache, pain, mucosal and nasal discharge are rapidly relieved.

Early, potent therapy is offered against disabling complications to which the patient may be highly vulnerable, particularly during febrile respiratory epidemics or when questionable middle ear, pulmonary, nephritic, or rheumatic signs are present.

ACHROCIDIN is convenient for you to prescribe—easy for the patient to take. Average adult dose: two tablets, or teaspoonfuls of syrup, three or four times daily.

tablets

ACHROMYCIN® Tetracycline . 125 mg.
Phenacetin 120 mg.
Caffeine 30 mg.
Salicylamide 150 mg.
Chlorothen Citrate 25 mg.

Bottle of 24 tablets

syrup

Each teaspoonful (5 cc.) contains:

ACHROMYCIN® Tetracycline
equivalent to tetracycline HCl 125 mg.
Phenacetin 120 mg.
Salicylamide 150 mg.
Ascorbic Acid (C) 25 mg.
Pyrimamine Maleate 15 mg.
Methylparaben 4 mg.
Propylparaben 1 mg.

Available on prescription only

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK



diagnosis: hypertension, moderate to severe

prescribed: **Rauprote***

(Rauwolfia Serpentina and Protoveratrine A & B Combined)

because immediate lowering of blood pressure is imperative

Rauwolfia Serpentina's gradual tranquilizing and prolonged hypotensive effect combines with faster-acting, more potent Protoveratrine for effective therapy with a minimum of risk. Each of the agents appears to potentiate the other's hypotensive activity and produce beneficial vasodilatation, without ganglionic or adrenergic blockade . . . without direct smooth muscle depression and without deranging those mechanisms which control blood distribution and which normally prevent postural hypotension.

Relief of symptoms is produced rapidly, blood pressure is lowered and tranquility ensues . . . with a minimum of side effects.

supplied: in bottles of 100 and 1000 tablets, each containing 50 mg. Rauwolfia Serpentina and 0.2 mg. Protoveratrine A and B (the chemically standardized alkaloid of *Veratrum Alba*), or on prescription at leading pharmacies



THE VALE CHEMICAL COMPANY, INC. *allentown, pa.*

PHARMACEUTICALS

*Trade Mark

To cut daytime lethargy
(and keep rauwolfia potency)
in treatment
of hypertension:

at 3:15
Mr. Haskins had
to dictate
War and Peace

Additional clinical evidence¹ supports the view that HARMONYL offers full rauwolfia potency coupled with much less lethargy. In a new comparative study HARMONYL was given at the same dosage as reserpine and other rauwolfia alkaloids. Only one HARMONYL patient in 20 showed lethargy, while 11 patients in 20 showed lethargy with reserpine; 10 in 20 with the alseroxylon fraction.

Abbott

712291

*for your hypertensives
who must stay on the job*

Harmony[®]

while the drug works effectively . . .

so does the patient

*Trademark for Deserpidine, Abbott

1. Comparative Effects of Various Rauwolfia Alkaloids in Hypertension; submitted for publication.



NO WAITING
for
a
cumulative
response to
reserpine alone

in anxiety and hypertension

NEW *fast-acting*

 Harmonyl-N*

(Harmonyl* and Nembutal®)

Calmer days, more restful nights starting *first* day of treatment, through synergistic action of HARMONYL (Deserpidine, Abbott) and NEMBUTAL (Pentobarbital, Abbott). Lower therapeutic doses, lower incidence of side effects. Each HARMONYL-N Filmtab contains 30 mg. NEMBUTAL Calcium and 0.25 mg. HARMONYL. Each HARMONYL-N *Half-Strength* Filmtab combines 15 mg. NEMBUTAL Calcium and 0.1 mg. HARMONYL. **Abbott**

A

M

E

F

new
"flavor-timed"
dual-action
coronary vasodilator

Dilcoron

TRADEMARK

ORAL

*for Sustained coronary vasodilation and
 protection against anginal attack*

SUBLINGUAL

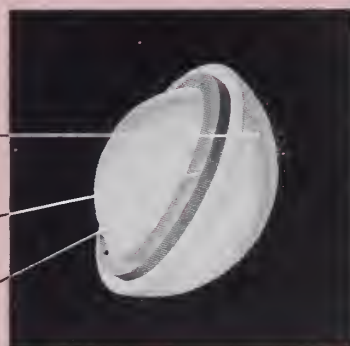
for Immediate relief from anginal pain

DILCORON contains two highly efficient vasodilators
 in a unique core-and-jacket tablet.

Glyceryl trinitrate (nitroglycerin)—0.4 mg. (1/150 grain)
 is in the outer jacket—held under the tongue until
 the citrus flavor disappears; provides
 rapid relief in acute or anticipated attack.

The middle layer of the tablet is
 the citrus "flavor-timer."

Pentaerythritol tetranitrate—15 mg. (1/4 grain) is in the
 inner core—swallowed for slow enteric
 absorption and lasting protection.



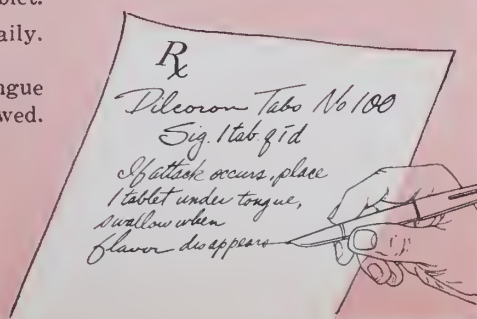
For continuing prophylaxis patients may
 swallow the entire Dilcoron tablet.

Average prophylactic dose: 1 tablet four times daily.

Therapeutic dose: 1 tablet held under the tongue
 until citrus flavor disappears, then swallowed.

Bottles of 100.

Winthrop LABORATORIES
 NEW YORK 18, N. Y.



If
Monilial
overgrowth
is a factor

ACHROSTATIN*V

Tetracycline (phosphate-buffered) and Nystatin

Combines ACHROMYCIN V with NYSTATIN

ACHROSTATIN V combines ACHROMYCIN† V...
the new rapid-acting oral form of
ACHROMYCIN† Tetracycline... noted for its
outstanding effectiveness against more than
50 different infections... and NYSTATIN... the
antifungal specific. ACHROSTATIN V provides
particularly effective therapy for those
patients who are prone to monilial overgrowth
during a protracted course
of antibiotic treatment.

supplied:

ACHROSTATIN V CAPSULES
contain 250 mg. tetracycline
HCl equivalent (phosphate-
buffered) and 250,000
units Nystatin.

dosage:

Basic oral dosage (6-7 mg.
per lb. body weight per day)
in the average adult is
4 capsules of ACHROSTATIN V
per day, equivalent to
1 Gm. of ACHROMYCIN V.

*Trademark
†Reg. U. S. Pat. Off.



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Since 1900*

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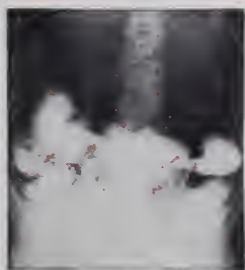
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when anxiety and tension "erupts" in the G. I. tract...

IN ILEITIS



PATHIBAMATE*

Meprobamate with PATHILON® Lederle

Combines Meprobamate (400 mg.) the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of ileitis — without fear of barbiturate loginess, hangover or habituation . . . *with PATHILON (25 mg.)* the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

Dosage: 1 tablet t.i.d. at mealtime. 2 tablets at bedtime.

Supplied: Bottles of 100, 1,000.



*Trademark

® Registered Trademark for Tridihexethyl Iodide Lederle

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EVERY WOMAN
WHO SUFFERS
IN THE
MENOPAUSE
DESERVES
"PREMARIN"

*widely used
natural, oral
estrogen*

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Of Fine Foods*

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PROTECTION AGAINST LOSS OF IN-
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AS WELL AS HOSPITAL EXPENSE
BENEFITS FOR YOU AND ALL YOUR
ELIGIBLE DEPENDENTS.



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ASSOCIATIONS

OMAHA 31, NEBRASKA

Since 1902

in bronchial asthma and respiratory allergies

specify the buffered "predni-steroids"
to minimize gastric distress

combined steroid-antacid therapy...

'Co-Deltra' or 'Co-Hydeltra' provides all the benefits of "predni-steroid" therapy and minimizes the likelihood of gastric distress which might otherwise impede therapy. They provide easier breathing—and smoother control—in bronchial asthma or stubborn respiratory allergies.

SUPPLIED: Multiple Compressed Tablets 'Co-Deltra' or 'Co-Hydeltra' in bottles of 30, 100, and 500.

'CO-DELTRA' and 'CO-HYDELTRA' are registered trademarks of MERCK & CO., INC.

**Multiple
Compressed
Tablets**



2.5 mg. or 5.0 mg.
of prednisone or
prednisolone, plus
300 mg. of dried
aluminum
hydroxide
gel and 50 mg.
of magnesium
trisilicate.

Co-Deltra[®]
(Prednisone buffered)

Co-Hydeltra[®]
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DIVISION OF MERCK & CO., INC.
PHILADELPHIA 1, PA.

See anybody here you know, Doctor?

I'm just too much



AMPLUS[®]

for sound obesity management
dextro-amphetamine plus vitamins
and minerals

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STIMAVITE[®]

stimulates appetite and growth
vitamins B₁, B₆, B₁₂, C and L-lysine

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a nutritional buildup for the OB patient

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And I'm getting brittle



NEOBON[®]

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hormonal, hematinic and
nutritional support

*With my anemia,
I'll never make it up
that high*



ROETINIC[®]

one capsule a day, for all treatable anemias

HEPTUNA[®] PLUS

when more than a hematinic is indicated

(Prescription information on request)

... solve their problems with a nutrition product from



New York 17, New York
Division, Chas. Pfizer & Co., Inc.

relaxes
both
mind
&
muscle

without
impairing
mental
or physical
efficiency



well tolerated, relatively
nontoxic — no blood dyscrasias, liver toxicity,
Parkinson-like syndrome or nasal stuffiness /
well suited for prolonged therapy

Supplied: 400 mg. scored tablets, 200 mg. sugar-coated
tablets. *Usual dosage:* One or two 400 mg. tablets t.i.d.

*For anxiety, tension and muscle
spasm in everyday practice.*

Miltown[®]
tranquilizer with muscle-relaxant action

2-methyl-2-m-propyl-1,3-propanediol dicarbamate



THE ORIGINAL MEPROBAMATE

DISCOVERED & INTRODUCED BY



WALLACE LABORATORIES

NEW BRUNSWICK, NEW JERSEY



Anxiety of pregnancy

'Miltown' therapy resulted in complete relief from symptoms in 88% of pregnant women complaining of insomnia, anxiety, and emotional upsets.*

'Miltown' (usual dosage: 400 mg. q.i.d.) *relaxes both mind and muscle* and alleviates somatic symptoms of anxiety, tension, and fear.

'Miltown' therapy does not affect the autonomic nervous system and *can be used with safety throughout pregnancy*.*

*Belafsky, H. A.,
Breslow, S.
and Shangold, J. E.:
Meproamate in pregnancy.
Obst. & Gynec.
9:703, June 1957.

Miltown®



THE ORIGINAL MEPROBAMATE

DISCOVERED & INTRODUCED BY

 WALLACE LABORATORIES

NEW BRUNSWICK, NEW JERSEY



little

How to win friends ...

The Best Tasting Aspirin you can prescribe.

The Flavor Remains Stable down to the last tablet.

25¢ Bottle of 48 tablets (1 1/4 grs. each).

We will be pleased to send samples on request.

THE BAYER COMPANY DIVISION
of Sterling Drug Inc.

1450 Broadway, New York 18, N. Y.



For Speedier Return To Normal Nutrition

Meat...

and the Protein Need in Renal Disease

Prevailing opinion holds that during the nephrotic state—provided the kidneys are capable of excreting nitrogen in a normal manner—the patient should be given a diet high in protein (1.5 to 2 grams per kilogram of body weight daily). The purpose of such a diet is to replace depleted plasma protein and to increase the colloidal osmotic pressure of the blood.

Sharp restriction of dietary salt appears indicated only in the presence of edema, but moderate restriction is usually recommended.

Lean meat is admirably suited for the diets prescribed in most forms of renal disease. It supplies relatively large amounts of high quality protein and only small amounts of sodium and chloride. Each 100 Gm. of unsalted cooked lean meat (except brined or smoked types) provides approximately 30 Gm. of protein, and only about 100 mg. of sodium and 75 mg. of chloride.

In addition to its nutritional contributions meat fulfills another advantageous purpose: It helps make meals attractive and tasty for the patient who must rigidly adhere to a restricted dietary regimen.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago . . . Members Throughout the United States

about

46 CALORIES

per 18 gram slice

Hollywood[®]
BREAD**INGREDIENTS**

WHEAT, WHOLE WHEAT AND FLAKED OR ROLLED WHEAT FLOURS, YEAST, MOLASSES, SALT, HONEY, MALT, CARAMEL, SESAME SEED, YEAST FOOD, WITH AN ADDITION OF WHOLE RYE, OATMEAL, SOYA, GLUTEN AND BARLEY FLOURS, PLUS DEHYDRATED VEGETABLE FLOURS, INCLUDING CARROT, SPINACH, KELP, LETTUCE, PUMPKIN, CABBAGE, CELERY AND PARSLEY. CALCIUM PROPIONATE ADDED TO RETARD SPOILAGE.

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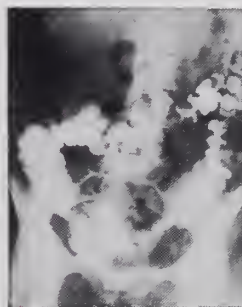
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when anxiety and tension "erupts" in the G. I. tract...

**in spastic
and irritable colon**

**PATHIBAMATE***Meprobamate with PATHILON[®] Lederle

Combines Meprobamate (400 mg.) the most widely prescribed tranquilizer... helps control the "emotional overlay" of spastic and irritable colon—without fear of barbiturate loginess, hangover or habituation... *with PATHILON (25 mg.)* the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

Dosage: 1 tablet t.i.d. at mealtime. 2 tablets at bedtime.*Supplied:* Bottles of 100, 1,000.

*Trademark

® Registered Trademark for Tridihexethyl Iodide Lederle

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK



- debilitated
- elderly
- diabetics
- infants, especially prematures
- those on corticoids
- those who developed moniliasis on previous broad-spectrum therapy
- those on prolonged and/or high antibiotic dosage
- women—especially if pregnant or diabetic

the best broad-spectrum antibiotic to use is

MYSTECLIN-V

Squibb Tetracycline Phosphate Complex (Sumycin) and Nystatin (Mycostatin)

Sumycin plus Mycostatin

for practical purposes, Mysteclin-V is sodium-free

for "built-in" safety, Mysteclin-V combines:

1. Tetracycline phosphate complex (Sumycin) for superior initial tetracycline blood levels, assuring fast transport of adequate tetracycline to the infection site.
2. Mycostatin—the first safe antifungal antibiotic—for its specific antimonilial activity. Mycostatin protects many patients (see above) who are particularly prone to monilial complications when on broad-spectrum therapy.

Capules (250 mg./250,000 u.), bottles of 16 and 100. *Half-Strength Capules* (125 mg./125,000 u.), bottles of 16 and 100. *Suspension* (125 mg./125,000 u.), 2 oz. bottles. *Pediatric Drops* (100 mg./100,000 u.), 10 cc. dropper bottles.

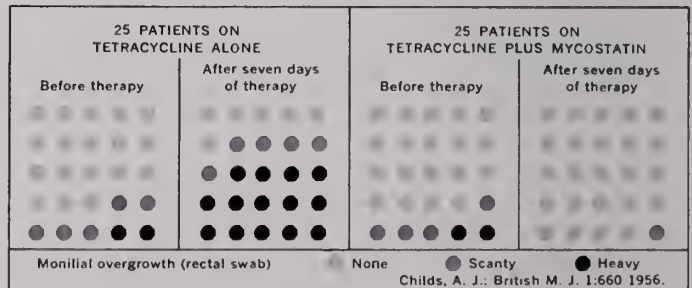
SQUIBB



Squibb Quality—
the Priceless Ingredient

*MYSTECLIN, ® MYCOSTATIN, ® AND SUMYCIN ARE SQUIBB TRADEMARKS

MYSTECLIN-V PREVENTS MONILIAL OVERGROWTH



AN AMES CLINIQUICK

CLINICAL BRIEFS FOR MODERN PRACTICE



just wet... ...and read

does proteinuria occur more frequently in any type of heart failure—myocardial hypertrophy, mitral valve, coronary artery, aortic valve or hypertensive heart disease?

No. The incidence of proteinuria is about equal among the various types of cardiac patients in failure.

Source—Race, G. A.; Scheifley, C. H., and Edwards, J. E.: *Circulation* 13:329, 1956.

first colorimetric test for proteinuria

ALBUSTIX

TRADEMARK

Reagent Strips. Bottles of 120.

also available as:

ALBUTEST[®]

BRAND

Reagent Tablets. Bottles of 100 and 500.



AMES COMPANY, INC • ELKHART, INDIANA

Ames Company of Canada, Ltd., Toronto

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in G.I. disorders

**'Compazine' controls tension
—often brings complete relief**

In such conditions as gastritis, pylorospasm, peptic ulcer and spastic colitis, 'Compazine' not only relieves anxiety and tension, but also controls the nausea and vomiting which often complicate these disorders.

Physicians who have used 'Compazine' in gastrointestinal disorders—often in chronic, unresponsive cases—have had gratifying results (87% favorable).

Compazine[★]

*the tranquilizer and antiemetic
remarkable for its freedom from
drowsiness and depressing effect*

Available: Tablets, Ampuls, Span-
sule[®] sustained release capsules,
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★T.M. Reg. U.S. Pat. Off. for prochlorperazine, S.K.F.

Smith Kline & French Laboratories, Philadelphia

B

DELAWARE HOSPITAL ISSUE

DELAWARE STATE MEDICAL JOURNAL

Official Organ of the Medical Society of Delaware

INCORPORATED 1789

VOLUME 30

FEBRUARY, 1958

NUMBER 2

BRAIN TUMORS IN CHILDREN . . .

A TOO COMMON OCCURRENCE

Complete Contents on Page iv



Enhances the "prime of life"

MI-CEBRIN

(Vitamin-Mineral Supplements, Lilly)

comprehensive dietary support for
healthy tissue metabolism

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Other current reports of *in vivo* and *in vitro* studies agree that CHLOROMYCETIN has maintained its effectiveness very well against both gram-negative²⁻⁶ and gram-positive^{2,6-10} organisms.

CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

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- (1) Woolington, S. S.; Adler, S. J., & Bower, A. G., in Welch, H., & Marti-Ibanez, F.: *Antibiotics Annual 1956-1957*, New York, Medical Encyclopedia, Inc., 1957, p. 365. (2) Dittmore, D. C., & Lind, H. E.: *Am. J. Gastroenterol.* 28:378, 1957. (3) Hasenclever, H. E.: *J. Iowa M. Soc.* 47:136, 1957. (4) Waisbren, B. A., & Strelitzer, C. L.: *Arch. Int. Med.* 99:744, 1957. (5) Holloway, W. J., & Scott, E. G.: *Delaware M. J.* 29:159, 1957. (6) Rhoads, P. S.: *Postgrad. Med.* 21:563, 1957. (7) Petersdorf, R. G.; Bennett, I. L., Jr., & Rose, M. C.: *Bull. Johns Hopkins Hosp.* 100:1, 1957. (8) Royer, A.: Changes in Resistance to Various Antibiotics of Staphylococci and Other Microbes, paper presented at Fifth Ann. Symp. on Antibiotics, Washington, D. C., Oct. 2-4, 1957. (9) Doniger, D. E., & Parenteau, Sr. C. M.: *J. Maine M. A.* 48:120, 1957. (10) Josephson, J. E., & Butler, R. W.: *Canad. M. A. J.* 77:567 (Sept. 15) 1957.

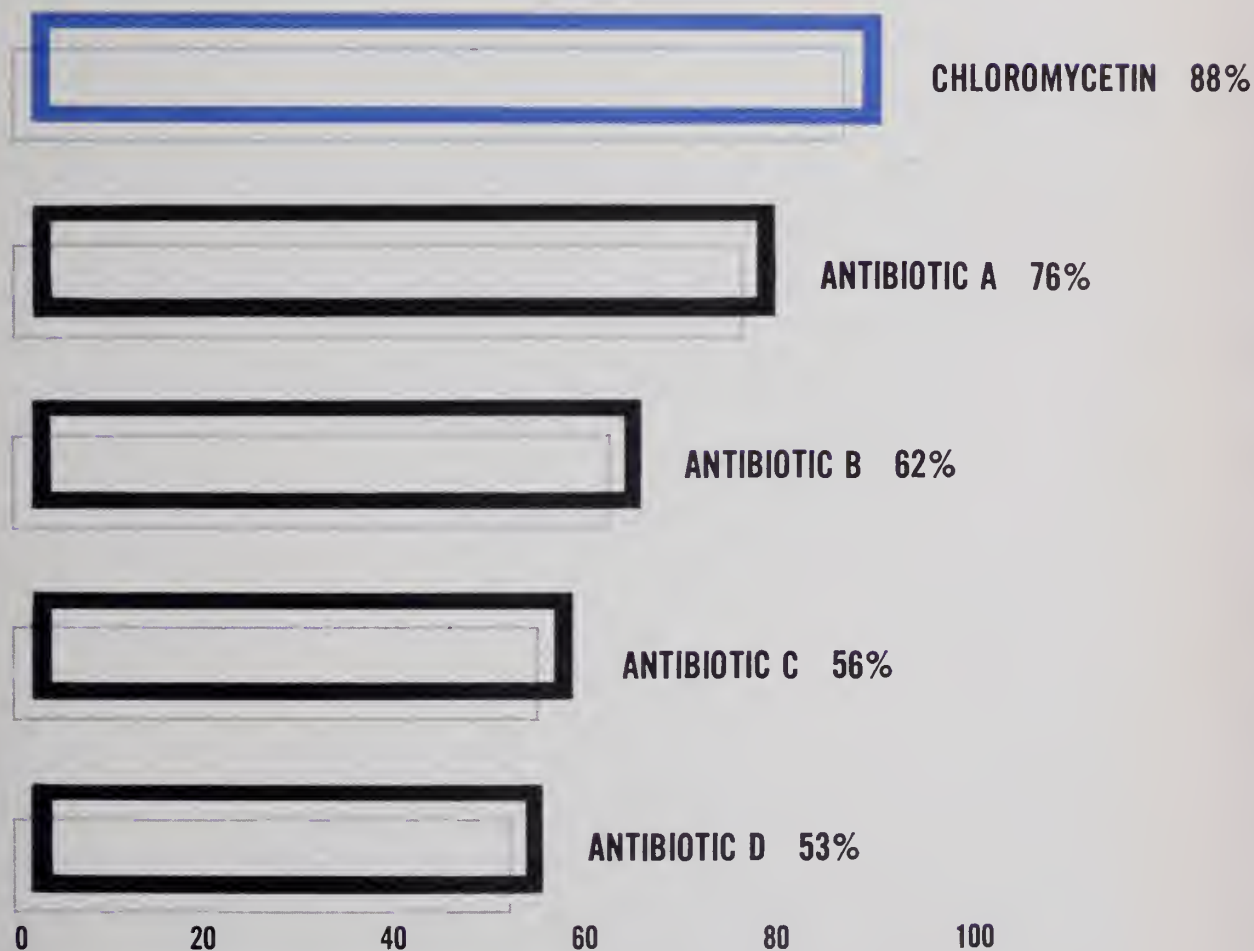
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EFFICACY

MYCETIN[®]

**IN VITRO SENSITIVITY OF MIXED PATHOGENS TO CHLOROMYCETIN
AND 4 OTHER WIDELY USED ANTIBIOTICS***



*Adapted from Ditmore and Lind.² Organisms tested were isolated from stools of 48 patients.

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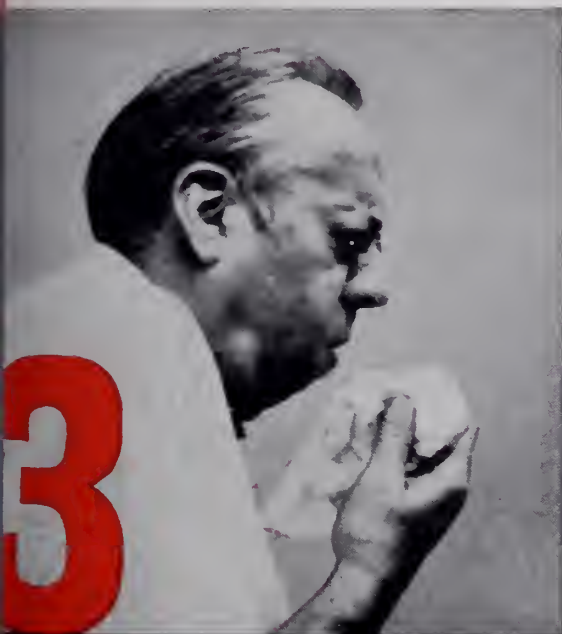
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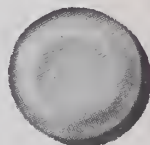
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*Murray, R. J.: N. Y. State J. Med. 53:1867, 1953.

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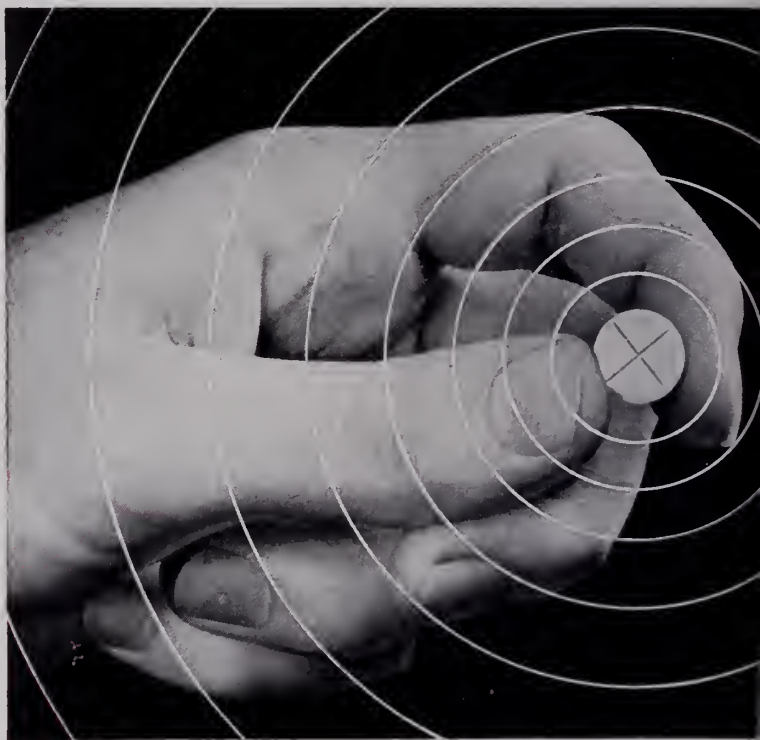
Riseman, J. E. F., Altman, G. E., and Koretsky, S.:
Nitroglycerin and Other Nitrites in the Treatment of
Angina Pectoris, *Circulation* (Jan.) 1958.

*'Cardilate' brand Erythrol Tetranitrate SUBLINGUAL TABLETS, 15 mg. scored



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¹ Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.

Hospital practice of infant feeding



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Water 14 oz.	13 oz.	12 oz.
Karo Syrup . . 1/2 oz.	3/4 oz.	1 oz.

Whole Cow's Milk Formulas: 3 1/2 oz. q 4h x 6 feedings

FORMULA I	FORMULA II	FORMULA III
11 cal./oz.	11.5 cal./oz.	13.5 cal./oz.
Whole Milk . . 8 oz.	9 oz.	10 oz.
Water 12 oz.	11 oz.	10 oz.
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**for those
penicillin-sensitive
organisms**



Indications

Against all penicillin-sensitive organisms. For prophylaxis and treatment of complications in viral conditions. And as a prophylaxis in rheumatic fever and in rheumatic heart disease.

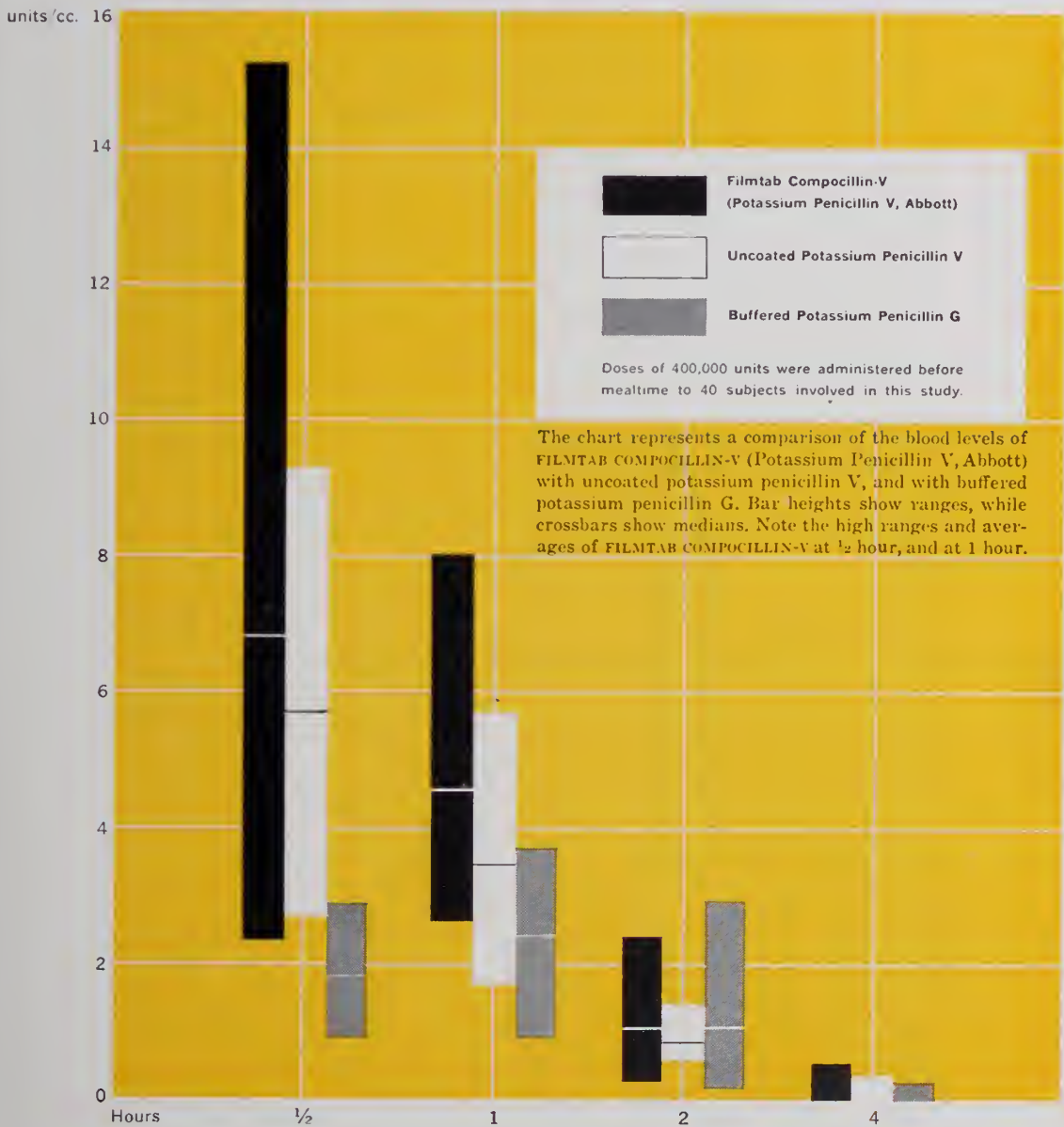
Dosage

Depending on the severity of the infection, 125 to 250 mg. (200,000 to 400,000 units) every four to six hours. For children, dosage is determined by age and weight.

Supplied

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(Ristocetin, Abbott)

**and when
coccal infections
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the patient**



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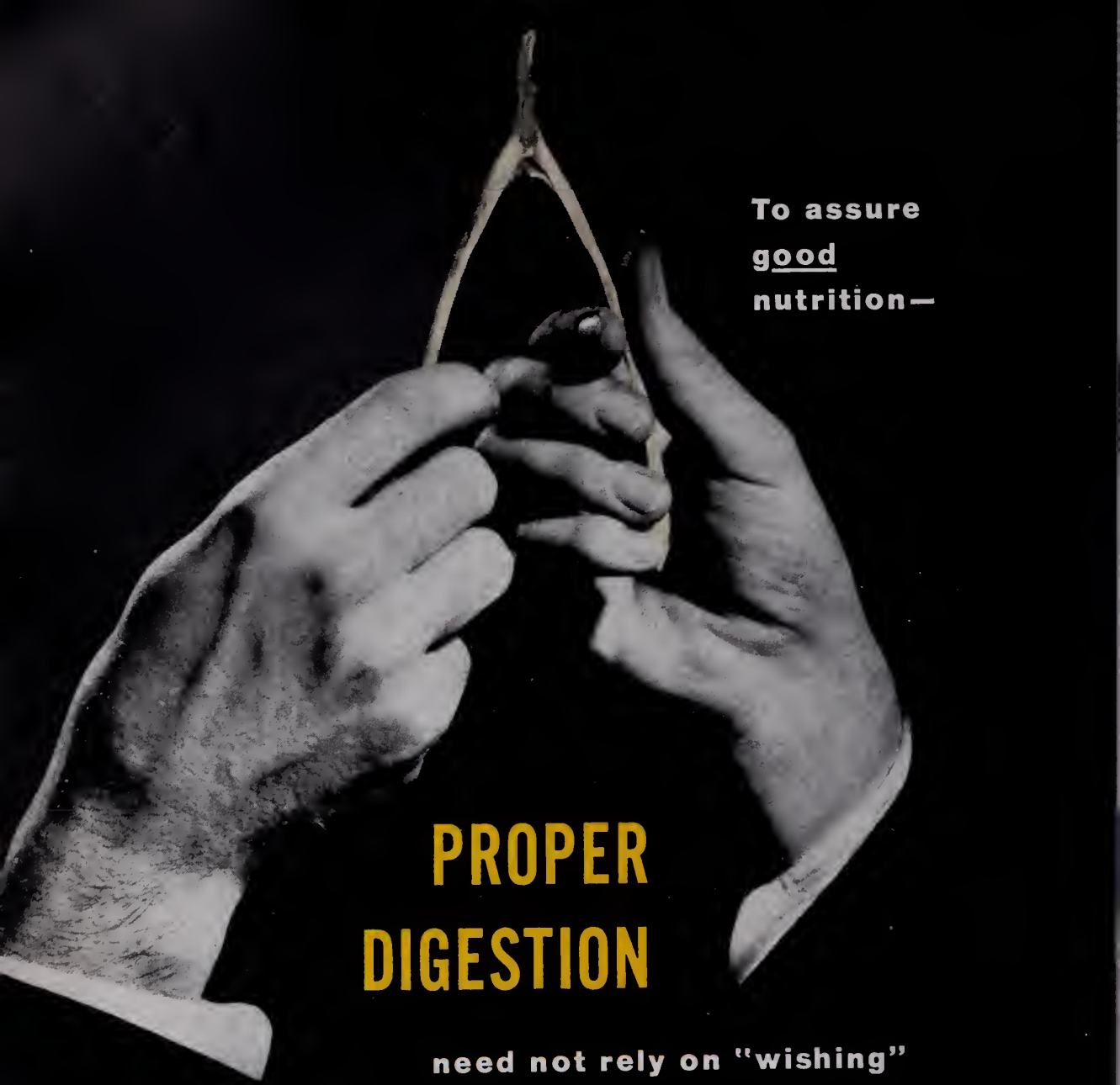
During these careful, clinical investigations, lives were saved after weeks (and sometimes months) of antibiotic failures. These were the cases where the infecting organisms had become resistant to present-day therapy. And, just as important, were the good results found against a wide range of gram-positive coccal infections.

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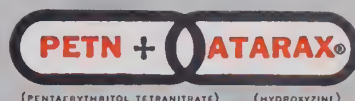
As a comprehensive supplement to deficient natural secretion of digestive enzymes, particularly in older patients, ENTOZYME effectively improves nutrition by bridging the gap between adequate ingestion and proper digestion. Among patients of all ages, it has proved helpful in chronic cholecystitis, post-cholecystectomy syndrome, subtotal gastrectomy, pancreatitis, dyspepsia, food intolerance, flatulence, nausea and chronic nutritional disturbances.

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freedom from
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tranquility

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*"Cardiac patients who show significant manifestations of anxiety should receive ataractic treatment as part of the therapeutic approach to the cardiac problem."*¹

1. Waldman, S., and Perner, L.: Am. Pract. & Digest Treat. 8:1075 (July) 1957.
*TRADEMARK



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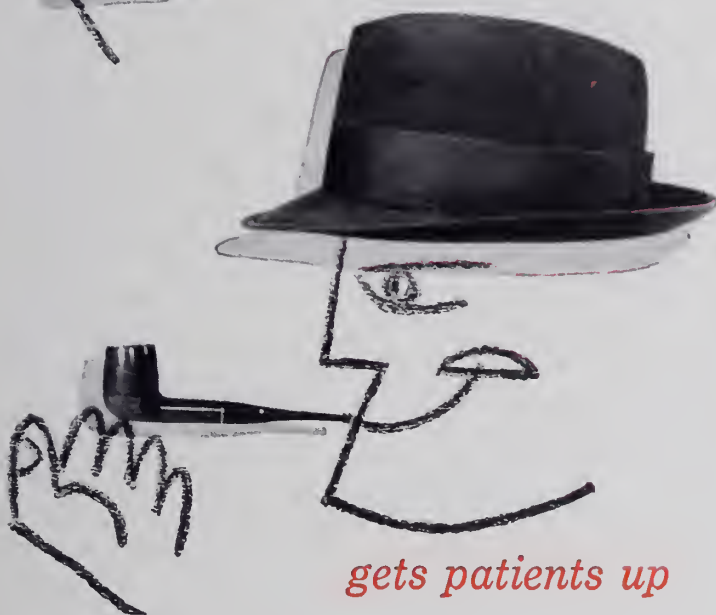
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Also consider 'Ilotycin' for safer therapy. Allergic reactions following systemic treatment are rare. Bacterial flora of the intestine is not significantly disturbed.

You can achieve more complete antibiotic therapy with 'Ilotycin.'

Usual adult dosage is 250 mg. every six hours.

*'Ilotycin' (Erythromycin, Lilly)

BRAIN TUMORS IN CHILDREN*

PHILIP D. GORDY, M.D., LIVIO OLMEDO, M.D. and RAYMOND W. HILLYARD, M.D.

The diagnosis and treatment of brain tumors in children presents vastly different aspects than does the tumor problem in the adult. Because of the special aspects of tumor diagnosis, treatment, tumor type and prognosis, a discussion of brain tumors in children is felt to be of value. Particular emphasis will be placed on diagnosis in order that the pediatrician and general physician will have reemphasized for them the signs and symptoms which may lead to an early diagnosis of brain tumor.

A high index of suspicion plus the thorough acquaintance with the significant early signs of tumor will enable the initial examining physician to make what is oft-times a difficult differential diagnosis. Brain tumor is not a rare condition but is a rather common problem. Delay in diagnosis and treatment may result from the fact that the tumors may mimic many of the common disorders of childhood such as gastro-intestinal involvement with persistent vomiting. This, coupled with the fact that the physician may not realize the frequency of brain tumor, can lead to a significant delay in establishing the diagnosis and instituting treatment.

GENERAL SYMPTOMATOLOGY

The signs and symptoms of increased intracranial pressure are the most frequently observed manifestations of brain tumors in children. This stems from the fact that about sixty or seventy percent of all intracranial tumors in children are located in the posterior fossa.⁵ This produces a block of the cerebro-spinal fluid pathways with increased intracranial pressure as one of the early signs. In dealing with children, and particularly the younger child, the history

of headache, diplopia and certain other subjective feelings may be unobtainable. It is important therefore, that the significance of the following clinical manifestations of increased intracranial pressure not be overlooked.

Headache — Headache is one of the most significant complaints in children as well as in adults. One should regard the complaint of headache in a child with a high index of suspicion. If the child is old enough to describe the headache, it may be found to be generalized or suboccipital in location. However, in the younger child it may simply lead to marked irritability, restlessness and crying.

Vomiting — Vomiting is probably one of the most significant signs encountered in children with tumors. The vomiting is secondary to increased intracranial pressure. It may be projectile in nature, but this is not necessarily the case. It frequently is not associated with food intake and may occur in the early morning. The misinterpretation of this most important sign leads to the most common error in differential diagnosis. These children frequently are studied and treated for some period of time as varying types of gastro-intestinal disorders. Obviously, not all children with vomiting harbor a brain tumor but the index of suspicion should be sufficiently high to lead to a search for other signs and the carrying out of any indicated diagnostic studies to rule this possibility in or out.

Papilledema — Papilledema is one of the pathognomonic signs of increased intracranial pressure which will lead immediately to the diagnosis of a brain tumor. It is highly important that a fundoscopic examination be carried out whenever such a lesion is suspected. Even though the head

*From the Neurosurgical Service of the Delaware Hospital.

may expand in the very young child, thus affording some decompression, papilledema may nevertheless develop.

Head Enlargement — The head will enlarge in the young child in response to increase in intracranial pressure by spreading of the suture lines. This produces a "cracked pot" sound on careful percussion of the skull. In addition to the widened suture lines, the bulging fontanelle may be easily palpated. This is the same mechanism which causes expansion of the skull in response to the increased intracranial pressure of hydrocephalus, not on a neoplastic basis. Special diagnostic studies are necessary to determine the cause of the expanding head.

In addition to these signs of generalized increase in intracranial pressure there are certain focal neurologic signs which also should lead to the suspicion of an intracranial tumor. Since, as has been mentioned, the largest share of tumors in children are in the posterior fossa, these signs will therefore relate primarily to the cerebellum and neighboring structures.

Ataxia — Ataxia is one of the commonest manifestation of cerebellar involvement. The ataxia is of a particular type known as truncal ataxia. The entire picture is often referred to as the vermis syndrome. The gait is primarily affected with a wide based, staggering ataxic gait with falling to either side or backward. The signs of peripheral ataxia may be minimal or absent.

Nystagmus — Nystagmus may be seen with the more laterally placed tumors such as the astrocytoma of the cerebellar hemisphere and is occasionally present with the vermis type of tumor. It is usually a lateral nystagmus. It may be entirely absent in the more frequent vermis or fourth ventricle tumor.

Head Tilting and Nuchal Rigidity — The child with a posterior fossa tumor frequently carries the head tilted toward the side of the tumor, presumably to release the tension on the dura and nerve root structures. As Walsh has pointed out, the head may tilt to either side, depending on the particular combination of extraocular muscle palsy present. This mechanism

serves to decrease the diplopia. It is not commonly recognized that stiffness of the neck and difficulty in forward flexion of the neck is a frequent and highly significant sign of posterior fossa tumor in children. This stiffness is produced due to traction of the pain sensitive structures at the base and, particularly in ependymomas of the fourth ventricle, the tumor may extend down into the cervical spinal canal beneath the atlas and axis producing compression in the upper cervical spinal cord and nerve roots. This may lead to the erroneous diagnosis of poliomyelitis or meningitis.

Isolated Cranial Nerve Palsies — A VI nerve palsy is the most commonly seen cranial nerve palsy. This is not a localizing sign, but is ordinarily a sign relating to increased intracranial pressure. The VI nerve has the longest course beneath the brain stem and is presumably stretched due to the displacement of tissues in response to the increase in intracranial pressure producing an internal strabismus. A III nerve palsy may occasionally be seen.

Convulsive Seizures — The usual type of seizures seen in children with either generalized or focal clonic movements is not commonly seen in the presence of brain tumor. So called cerebellar fits with opisthotonus and retraction of the head with a deverebrate type of picture and abnormalities of respiration and circulation may be seen.

Motor and Sensory Disturbances — In the cerebral hemisphere tumors in children one may see the various manifestations with which we are more familiar in the adult patient. Focal weakness of an extremity with a paretic type of ataxia and possibly a hemiparetic gait may occur. Sensory disturbances are difficult or impossible to detect with tumors in this location; focal seizures or generalized convulsive seizures take on a greater significance. Aphasia may be present.

Multiple Cranial Nerve Palsies — Multiple cranial nerve palsies, particularly in the presence of long tract sensory or motor signs, are significant. The onset of a mixed picture such as this with one or both VI nerves involved, a facial palsy and perhaps

involvement of the lower cranial nerve group plus pyramidal tract signs and ataxia is the fully developed picture of a brain stem tumor. Not infrequently this picture is erroneously attributed to an encephalitis. Careful studies should be carried out to rule out the possibility of a brain stem tumor in view of the vast difference in treatment and prognosis.

The following is a brief outline of the more important brain tumors seen in children.

TUMOR TYPE AND LOCATION

A. Cerebellum

1. Astrocytoma
 - a. Vermis
 - b. Hemisphere
2. Medulloblastoma—Vermis
3. Hemangioblastoma—Hemisphere
4. Ependymoma—IV Ventricle

B. Cerebral Hemisphere

1. Ependymoma
2. Meningioma
3. Astrocytoma
4. Oligodendroglioma

C. Pituitary Region

1. Craniopharyngioma
2. Glioma

D. Optic Nerve and Retina

1. Glioma and Optic Nerve
2. Retinoblastoma

E. Tumors of Skull

1. Eosinophilic granuloma
2. Osteoma

F. Metastatic Tumors

1. Neuroblastoma

THE MOST FREQUENTLY ENCOUNTERED BRAIN TUMORS IN CHILDREN

MEDULLOBLASTOMA

The medulloblastoma results from the growth of embryonal cells in the region of the vermis. The tumor is usually confined to the vermis but may extend for varying distances into the adjoining cerebellar hemisphere. The tumor in this midline location eventually enlarges to such an extent, that

it blocks the IV ventricle producing an obstructive hydrocephalus with increasing intracranial pressure. The presence of the tumor in the midline vermis plus its extension into the IV ventricle and aqueduct produce the two main clinical manifestations. Typically, the little patient with such a lesion may begin to develop insidiously, but nevertheless rapidly, difficulty in walking with staggering and falling. There is progressive inability to maintain balance as the condition progresses. Either preceding or developing concurrently with this truncal ataxia, the child may begin to vomit. Characteristically, this occurs in the morning and may not be associated with food intake. The vomiting then becomes persistent and severe. The child is irritable, fretful and is obviously extremely ill; if old enough, he may complain of headache and diplopia. These signs and symptoms are pathognomonic of a midline vermis tumor. The patient should be referred promptly for further diagnostic studies and appropriate treatment.

The medulloblastoma is probably the most malignant and rapidly growing of any of the intracranial tumors in childhood. It commonly seeds throughout the subarachnoid spaces both up over the hemispheres and down along the spinal axis. For the best palliative effort, therefore, the child must have treatment instituted promptly. The neurologic study of the patient with a medulloblastoma begins with a detailed neurologic examination. The examination may reveal the head to be slightly enlarged and the typical cracked pot sound may be present. One or both VI nerves may be involved producing an internal strabismus. Papilledema is very frequently present. As has been mentioned, peripheral ataxia may be absent but there is marked truncal ataxia of varying degree. There are no sensory changes. The motor disabilities are primarily in the co-ordination sphere and ordinarily no weakness or paralysis is noted.

X-rays of the skull should be obtained. These frequently will show spreading of the suture lines with occasional increase in digital markings. Spinal tap is contra-indicated in all posterior fossa tumors and should not be resorted to as a diagnostic measure.

Ventriculogram is the next study in sequence which follows these preliminary investigations. This study should be performed only when there are preparations to either carry out definitive surgery or introduce a ventriculostomy drainage tube if the diagnosis is confirmed. Radical alterations in intracranial pressure relationships may result, and disastrous consequences follow if these preparations have not been made. Ventriculography is the safest and most informative of the various contrast studies to be used. At the operating table, the ventricle is found to be enlarged and under markedly increased pressure. Following the exchange of air and fluid, the ventriculographic films reveal a dilated ventricular system with absence of filling of the IV ventricle and part of the aqueduct. Occasionally some of the air will encircle the upper pole of the tumor outlining this in the ventriculographic film.

Ventriculostomy may be used preliminary to definitive surgery in order to decompress the ventricular system and lessen the operative risk. However, this is a matter of judgment in the individual case. The definitive treatment of the medulloblastoma is a combination of appropriate surgical attack upon the tumor itself and x-ray therapy following this. It is essential that the tumor type be confirmed since otherwise a midline astrocytoma may be misdiagnosed and subjected to x-ray therapy alone, rather than a more appropriate surgical attack. Therefore, suboccipital craniectomy is carried out with exposure of the vermis and IV ventricle. A purplish gray tumor which is quite vascular is disclosed easily and the largest portion of this can be removed with a combination of suction and piecemeal dissection. It is important that the lower end of the aqueduct be unblocked in order to re-establish spinal fluid circulation. This is the essential part of the surgical treatment. Following completion of this and healing of the wound, x-ray therapy is then applied. Ingraham and Matson suggest 3,000 r to the posterior fossa, using 15 to 20 treatments through 3 portals. 2,000 to 3,000 r is then given fractionally to the rest of the cerebrospinal axis.⁵ It is important that not only the site of the tumor itself be irradiated, but the



1a. A-P ventriculogram showing dilated lateral and third ventricles in medulloblastoma.



1b. Lateral view of same. Arrow points to site of block in aqueduct.

various portions of the cerebro-spinal subarachnoid pathway to which this tumor may metastasize.

Following this combined method of treatment, an average survival period of two to two and one-half years may be realized. There are occasional longer survivals. Among the children's tumors treated surgically at the Delaware Hospital, there are two medulloblastomas whose survival period have been eight and seven years. The child who has

had the seven year survival has had a second operation plus a second course of x-ray therapy and is again asymptomatic. The child with the eight year survival period has never had any signs of recurrence since her original surgery and x-ray therapy. This tumor is not curable with our present methods of treatment, but significant degrees of palliation can be obtained.

The following case history illustrates a satisfactory long term survival of a patient with a medulloblastoma:

The patient was a four-year-old white girl who was first seen on December 12, 1949, for a complaint of turning-in of the right eye. This had been present about one month. The child had had no headache or visual complaint. The mother felt that she might have fallen more frequently than had been usual for her. Otherwise, she was in good health.

Neurologic examination revealed a co-operative child who was markedly unsteady in her gait and tended to stagger to the left side. The cranial nerve examination revealed a right external rectus palsy with nystagmus on lateral gaze to either side. This was more noticeable on the right side. There seemed to be slight lagging of elevation of the left corner of the mouth. The motor examination revealed a positive Romberg with unsteadiness on walking around a central object. This was most marked on walking to the left. There was bilateral ataxia on heel-to-toe test. There was no specific reflex abnormality.

The clinical diagnosis was a midline cerebellar tumor, probably a medulloblastoma. X-ray examination of the skull revealed marked widening of the sagittal, coronal and lambdoidal sutures. There were no other abnormalities seen in the skull x-ray. Because of rapid deterioration in the patient's condition, ventriculography was done on December 21, 1949, revealing dilated ventricles under markedly increased pressure. The dome of the tumor could be seen projecting in the fourth ventricle. Craniotomy was done immediately with removal of approximately 95% of a purplish, reddish-gray tumor occupying the vermis and

fourth ventricle. The aqueduct was unblocked satisfactorily.

This patient had a fairly benign post-operative course. A course of x-ray therapy was given. She was discharged on January 13, 1950 and has been followed in the office constantly since this time with gradual improvement of her mild post-operative residual findings. She retained a permanent left external rectus palsy. A mild facial weakness which was present post-operatively gradually cleared. In 1955 a muscle shortening operation was carried out to correct the strabismus. She has continued to do well and at the present time is completely asymptomatic and has no neurologic signs except for the residual extraocular muscle palsy.

CEREBELLAR ASTROCYTOMA

The cerebellar astrocytomas are the second of the two most significant groups of brain tumors in childhood. They have a much more favorable outlook than the medulloblastoma. The manifestations may be very similar, particularly if the tumor is primarily located within the vermis. The peak incidence of this tumor is reported by Ingraham and Matson to be between five and eight years.⁵ In a series of reports by Cuneo and Rand, sixteen cases were located within the cerebellum.¹ Of these, nine were vermis in location and seven occupied either the right or the left cerebellar hemispheres. The astrocytoma tends frequently to be cystic with a mural nodule. This permits incision of the nodule with a significant degree of long survival or cure. Occasionally the tumor may extend upward into the brain stem, making it difficult to remove the tumor entirely.

The clinical picture is very similar to that presented by the medulloblastoma. The signs and symptoms of increased intracranial pressure are prominent, and the child begins to complain of headache, possibly diplopia and develops a staggering gait. This picture develops over a somewhat longer period of time than does that seen with the medulloblastoma.

The same manifestations may be seen on the diagnostic studies. In view of the fact

that this is a more slowly growing tumor, there may be more definitive alterations in the skull x-ray with a greater frequency of widening of the suture lines and increased digital markings. Though a more slowly progressing history may suggest a cerebellar astrocytoma, the actual differentiation must be an operative one with pathologic confirmation. Because these tumors are relatively benign with a better prognosis than is presented by the medulloblastoma, it is essential that surgical confirmation be performed on any midline cerebellar tumor, prior to the institution of x-ray therapy. The treatment of the astrocytomas is surgical and because of the nature of these tumors a complete removal may be entirely feasible. X-ray therapy has no significant effect.

EPENDYMOMA

Ependymomas of the IV ventricle are, though less common than the medulloblastoma and astrocytoma, nevertheless an important group in children. These tumors are of an intermediate grade of malignancy. They arise from the ependymal lining of the IV ventricle and tend to fill the entire IV ventricle and aqueduct, lateral recess of the IV ventricle and may extend down into the upper cervical spinal canal. They present a technical hazard because the attachment of the tumor to the floor of the IV ventricle can ordinarily not be removed and any manipulation of this region may produce serious disorders of respiration on the operating table.

The clinical picture varies somewhat from the ones previously described. The prominent manifestations are those of increased intracranial pressure with gradually increasing headache, usually present in the morning. Vomiting is a frequent accompaniment. In addition VI nerve palsies may be seen as a manifestation of increased pressure. Cranial nerve signs are usually not prominent but truncal ataxia and other cerebellar signs may be present. One of the important features which should be recognized is the stiffness of the neck which frequently is present as a result of prolongation of this tumor into the upper cervical spinal canal. This may lead to the errone-

ous diagnosis of poliomyelitis or meningitis. In the series of eighty-three proven cases of intracranial tumors in children reported by Cuneo and Rand, six were classified in the ependymoma group (7.3%.¹) These tumors, as do the medulloblastomas, may seed throughout the subarachnoid system. In addition, they are difficult to remove because of the attachment to the floor of the IV ventricle.

The special diagnostic studies may reveal essentially the same findings as those presented in the previous two tumor types. There is radiologic evidence of increased intracranial pressure with spreading of the suture lines and frequently increase in the digital markings. Ventriculography reveals the same picture of dilated lateral and III ventricles with blocking of the aqueduct and IV ventricle. Occasionally, air may partially encircle the tumor permitting visualization of its upper pole in the IV ventricle. Surgical removal is accomplished in the same fashion as has been described. These tumors are moderately sensitive to x-ray and Ingraham and Matson recommend a dosage of 3,000 r following removal of all of the tumor with the exception of the ependymal attachment.⁵

GLIOMAS OF THE BRAIN STEM

The tumor types seen in this location are the astrocytoma, spongioblastoma unipolare and mixed gliomas.⁵ The clinical manifestations of these tumors vary significantly from those previously described. Due to the location of the tumor within the brain stem itself, increased intracranial pressure is long delayed. Therefore, these children do not complain of headache and vomiting initially and papilledema is ordinarily not seen on examination. The typical clinical picture is made up of a combination of cranial nerve palsies and involvement of the long descending tracts. In a child who reveals multiple bilateral cranial nerve abnormalities with involvement of the pyramidal tracts, ataxia, and no signs of increased intracranial pressure, one should strongly consider the possibility of a brain stem glioma. This lesion is frequently erroneously diagnosed as bulbar poliomyelitis, encephalomyelitis, meningitis or cerebral palsy. Because of the location of

this tumor, it is completely inoperable. Biopsy specimens, of course, cannot be obtained from this location. The diagnosis is clinical and is confirmed by pneumo-encephalography. Plain x-rays of the skull do not reveal any of the radiologic signs of increased intracranial pressure which have been discussed before. With the absence of any radiologic or clinical signs of increased intracranial pressure, a spinal tap may safely be performed. This may show some increase in protein and cell count though they are not usually significantly elevated. Pneumo-encephalography is a definitive study. In an air encephalogram showing adequate filling, the tumor may be diagnosed with certainty because of the increase

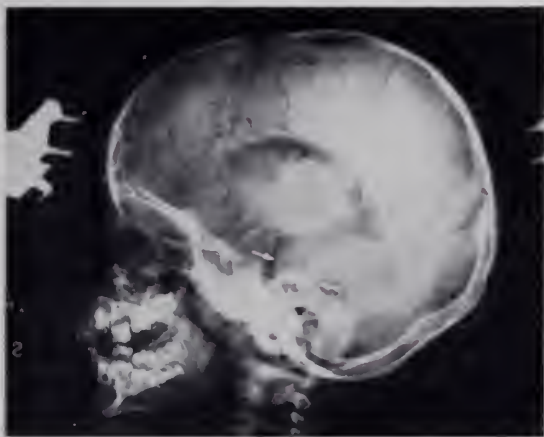
in the distance between the floor of the IV ventricle and the pontine cistern. Ordinarily this should not exceed three and one-half centimeters. In the presence of a brain stem glioma this distance is considerably widened. Surgical exploration is not indicated.

X-ray therapy is the treatment of choice. However, this is purely palliative and gives only temporary benefit. 3,000 r to the area involved is the usual x-ray dosage.⁵ The usual survival time as reported by Ingraham and Matson is less than one year.

The following case history illustrates the usual course of a brain stem glioma:

This six-year-old white boy was admitted to the Delaware Hospital on May 27, 1955, for neurologic evaluation and treatment. He had been in a normal state of health until early April. At this time, staggering gait and left-sided motor weakness was first noted. His difficulty in walking became increasingly more severe and he was admitted to another hospital for treatment. He was discharged on April 27, 1955 with no definite findings to explain the admitting complaint. By the middle part of May, he had begun to deteriorate rapidly, exhibiting increasingly unsteady gait with inability to stand, right-sided facial weakness and dysarthria. Personality disturbance, fever and incontinence of urine were also noted.

On admission to the hospital he appeared both chronically and acutely ill. He was oriented and responded to commands and requests but exhibited a severe dysarthria. Swallowing difficulty was also present. The pupils were equal and reacted to light. The extraocular movements revealed a right medial rectus palsy with the right lateral rectus partially involved. There was also weakness of left lateral gaze. The combination of these extraocular muscle palsies was strongly suggestive of involvement of the medial longitudinal fasciculus in the brain stem. There was no papilledema. There was right facial weakness involving both the upper and lower portions of the face but more marked in the lower portion. His hearing was normal. There was weakness of palatal elevation and a severe dysarthric speech. Swallowing difficulty was severe. The tongue protruded in the midline.



2a. Normal pneumoencephalogram revealing normal width of brain stem between pontine cistern and floor of IV ventricle.



2b. Pneumoencephalogram revealing widening of the pons indicative of a pontine tumor. Thickened pons is indicated between arrows. (Cf. Fig. 2a)

Sensation appeared to be normal except for some decrease in the left arm and hand.

The motor system revealed weakness and cerebellar ataxia on the left side with a very mild ataxia and dysmetria on finger-to-nose test and on rapid alternating movements. To some extent there was also ataxia on the right upper extremity although this was not as marked. The extremities were hypotonic and it was impossible for the patient to stand or walk without assistance. He had a wide based ataxic gait. The deep-tendon reflexes were hyperactive with a bilateral Hoffmann, Babinski and Chaddock response bilaterally. There was bilateral, sustained ankle clonus.

This combination of neurologic findings strongly suggested a brain stem tumor. The electroencephalogram showed a left temporal slow wave focus suggesting the possibility of upward extension into the temporal lobe. X-rays of the skull were within normal limits.

On June 7, 1955, the patient was subjected to combined ventriculogram and lumbar pneumo-encephalogram. These films revealed a widening of the pons confirming the diagnosis of a brain stem tumor.

The patient's condition deteriorated rapidly. X-ray treatment was carried out through four portals with a total tumor dose of 5,000 r in seven weeks. The patient improved very satisfactorily following x-ray therapy. However, just prior to Christmas 1955, his condition began to rapidly deteriorate again. Tube feeding became necessary. Further x-ray therapy was not thought advisable and he expired on January 7, 1956.

GLIOMAS OF THE CEREBRAL HEMISPHERE

These tumors are reported by Ingraham and Matson to have an incidence of ten to fourteen percent of childhood tumors.⁵ The most common tumor type is either astrocytoma or ependymoma. Occasional mixed gliomas are encountered. The signs of increased intracranial pressure with headache, vomiting and papilledema are frequently present. In addition, one does not see cerebellar signs, but on the contrary there may

be varying degrees of motor weakness of the side opposite the lesion. There may be a mild hemiparesis with awkwardness in the use of the hand on that side. Sensory disturbances are difficult or impossible to elicit, at least in the younger child. In this group of tumors, convulsive seizures are of significance. Todd's post-ictal paralysis may be present following a series of Jacksonian seizures and gives a clue as to the location of the lesion. Personality changes may occur.

Here again, the erroneous conception that brain tumors are an uncommon lesion may lead to error in the diagnosis. Poliomyelitis, cerebral palsy and epilepsy are among the uncritical diagnoses which may be put forward. Ingraham and Matson state that "in this age group objective diagnostic procedures should be employed freely for minimal indications."⁵ In these tumors, the electro-encephalogram may be of some benefit, revealing abnormal slow activity on the side of the lesion.

Diagnostic studies may reveal calcification in these tumors, thus giving an accurate localization and making further diagnostic measures unnecessary. However, in the absence of calcification, ventriculography or occasionally arteriography is indicated. Depending on the location, these tumors will reveal a significant alteration in the air shadow or in the vascular pattern. In this group of tumors, increase in the digital markings of the skull, separation of the suture lines or occasionally erosion of the dorsum sellae and sphenoid ridge may be seen.

Following accurate localization of the lesion, surgical removal is, of course, in order. This is accomplished through an osteoplastic flap with as complete removal of the tumor as is possible. The employment of x-ray therapy will depend on the individual case and the tumor type. Two recent ependymomas of the cerebral hemisphere in our series of children's tumors have been accompanied by heavy calcification in the tumor. The case history of one of these tumors follows:

This eleven-year-old white girl was admitted to the Delaware Hospital on August

28, 1957. The parents stated that she had had headache for several months with occasional vomiting. Apparently, this had not been severe enough to alarm them and was at first thought to be due to a gastro-intestinal problem. Just prior to her hospital admission, she accompanied her parents on a trip to the West Coast. Immediately on return, they noted that she seemed to be unable to see objects which were close at hand. If she were asked to pick up something, she would look around without seeing where it had been. Initially, it was thought that she was joking but it was then realized that she actually was having severe difficulty in seeing. She was examined by an ophthalmologist following this and found to have bilateral papilledema.

On admission, the patient was clear and cooperative. She complained of severe headache and difficulty in vision. She was completely oriented and showed no evidence of aphasia. The cranial nerve examination revealed bilateral papilledema, more severe on the right, of about two to three diopters. Vision was markedly reduced to gross testing. The pupils were dilated but did react to light. The ocular movements were normal. The remaining cranial nerves were normal. Sensory examination over the body revealed no deficits in any sensory modality. The motor examination revealed equal strength with normal coordination. There was no weakness. Gait and station were

normal. The deep-tendon reflexes were within physiologic limits.

The clinical history coupled with the finding of bilateral papilledema was thought to be diagnostic of brain tumor. X-rays of the skull were obtained and these revealed markedly increased intracranial pressure as evidenced by severe spreading of the suture lines. In addition, there was a flaky calcification which was approximately spherical and occupying a position in the right occipital lobe. This appearance was felt to be compatible either with an ependymoma, astrocytoma or possibly an oligodendroglioma. An electro-encephalogram was done revealing a markedly abnormal record with high voltage slowing on both sides but most marked in the right occipital region. This was considered to indicate a right occipital lobe mass lesion. An ophthalmological examination disclosed a left homonymous field defect.

These findings indicated a large tumor in the right occipital region of a slow-growing nature. In view of the calcification in the skull x-ray, contrast studies were not indicated. On September 2, 1957, a right occipital craniotomy was performed. A large solid tumor was removed from the right occipital lobe. Immediately beneath this tumor, and occupying a position between it and the ventricle, was a large cystic mass containing 30 to 40 cc. of dark brownish fluid, presumably old blood. A total removal was accomplished.

This patient's post-operative convalescence was complicated only by a tachycardia during the first twenty-four to forty-eight hours. This was brought under control easily. Her subsequent post-operative course has been uneventful. Post-operative visual fields revealed a completely normal field of vision on the right with the left showing a large central scotoma continuous with a complete temporal cut. There was some constriction of the remaining nasal field. Visual acuity has improved in the right eye to 20/40. The left eye revealed finger-counting at three feet. The headaches have completely disappeared and the patient has now returned to her classes in school.



3. Lateral x-ray showing flaky calcification in an ependymoma of the occipital lobe.



4. Post-operative photograph of patient showing occipital scalp incision.

CRANIOPHARYNGIOMA

This tumor commonly occurs in the first and second decades and there is approximately a five to thirteen percent incidence among children's brain tumors.⁵ It is highly important that these lesions be disclosed before irreversible damage to the visual apparatus has occurred. The symptomatology divides itself naturally into three categories. These abnormalities of function stem from the location of the tumor and its effect on the surrounding structures. The tumor results from epithelial rests of the evagination from the pharynx known as Rathke's pouch and these tumors are therefore also known as Rathke's pouch cysts. These rests may be seen at a point along the pituitary stalk. Metabolic and endocrine dysfunction may be seen as a result of interference with pituitary function. These children may be underdeveloped indicating interference with growth hormone. In addition, there may be signs of hypothalamic involvement with diabetes insipidus as a result of interference with the supra-optic hypo-physical tract. Abnormal somnolence may be seen as well as disturbances of temperature regulation. The third general group of disturbances in

function concerns itself with visual abnormalities. Since these tumors are usually suprasellar in location, they may project upward into the III ventricle and project downward in an asymmetric fashion to involve one or both optic nerves and the chiasm. The visual field defects, therefore, may be more irregular than are those seen with chromophobe adenoma of the pituitary gland. Homonymous hemianopsia may be seen as well as irregular bitemporal field defects. Optic atrophy and occasionally papilledema may be seen.

The child, of course, may be totally unaware of any of these difficulties including the visual abnormalities. It is, therefore, highly important that the examining physician recognize the signs of physiologic disturbance in this area. X-rays of the skull may reveal the radiologic signs of increased intracranial pressure. In addition, there is a reported incidence of sixty to seventy percent of suprasellar calcification in these tumors. Ventriculography is the procedure of choice in demonstrating the size and extent of this tumor mass. On satisfactory ventriculograms, the tumor may be seen projecting up into the III ventricle if the cyst is large.

These tumors must be treated surgically. Because they are frequently extremely adherent to surrounding structures including the optic nerves, chiasm, hypothalamus and carotid arteries, it may be impossible to completely remove this mass. However, a portion of the cyst can be removed and the contents evacuated. This may provide satisfactory palliation and a long survival period. Complete removals are reported, but the operator must content himself with partial removal in the largest number of cases. The tumor is not radio-sensitive.

GLIOMA OF THE OPTIC NERVE

Glioma of the optic nerve is a rare but important tumor entity in children. These tumors may be cured if they are detected sufficiently early. They are accompanied by fairly characteristic signs and symptoms which should lead to their early recognition. The clinical picture is that of a young child who begins to develop a painless protrusion

of the eye. Usually, visual loss precedes the progressive exophthalmos. However, in the very young child, this may not be recognized until the vision is almost totally lost. Examination will reveal varying degrees of exophthalmos of the involved eye. The eye may be pushed forward, or forward and downward. Fundusoscopic examination may in some instances reveal papilledema. However, the usual picture is that of primary optic atrophy. If vision is seriously impaired, the pupillary light reflex will be interfered with on the involved side. It will be noted that the exophthalmos is not pulsating and that the globe is not reducible.

The tumor may involve the optic nerve primarily within the orbit or it may extend to involve the intracranial portion. The orbital part of the optic nerve is involved most frequently. The tumor may extend as far back in the optic nerve as the chiasm. This, of course, precludes complete removal of the lesion. However, if the optic nerve can be amputated intracranially at or in front of the chiasm, cure may be accomplished. Enucleation of the globe is usually necessary.

PINEALOMA

Posterior III ventricle tumors are an important segment of the tumor problem in children. The most important single tumor in this group is the pinealoma. This tumor arises from the cells of the pineal gland either in the form of a pinealoma or, if made up of more primitive cells, the pinealoblastoma. This tumor produces an enlarging mass in the posterior portion of the III ventricle which, as it extends, tends to block the cerebro-spinal fluid pathway at the upper end of the aqueduct. An internal hydrocephalus is thus produced with the classical signs of increased intracranial pressure. Initially, the neurologic signs may be minimal. One interesting finding in this tumor is Parinaud's syndrome in which the patient is unable to look upward. This results from pressure of the tumor on the collicular plate of the midbrain.

Plain skull x-rays may reveal only widening of the suture lines and some increase in digital markings. Occasionally there may

be thinning of the dorsum sellae. Calcification may be present in these tumors. Ventriculography reveals dilated lateral ventricles with a filling defect in the posterior portion of the III ventricle and absence of filling of the aqueduct and IV ventricle. This clinical picture plus the roentgen signs are diagnostic of a pineal tumor. Occasionally, this tumor may metastasize and ectopic pinealomas are reported in the chiasmal region.⁴

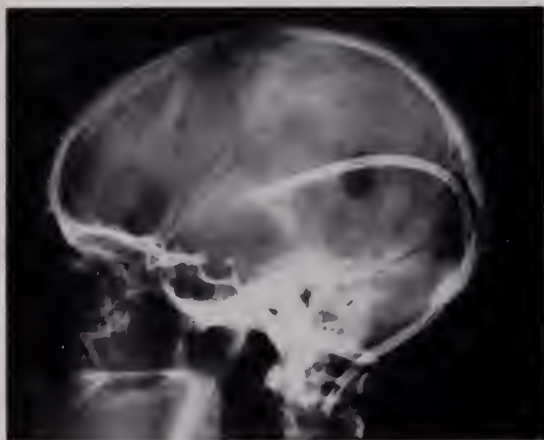


5a. A-P ventriculogram revealing dilated lateral ventricles and rounded tumor projecting into dilated third ventricle. (Arrows) (Pinealoma)



5b. Lateral ventriculogram showing large rounded tumor occupying the posterior and mid third ventricle producing ventricular block. Note calcification in tumor. (Pinealoma)

Because of the location of the pinealoma, surgical extirpation carries a prohibitive mortality. There have been reports of successful removals of pineal tumors by splitting the splenium of the corpus callosum and approaching the tumor from above. However, due to the surrounding structures and the difficulty of obtaining adequate exposure, it may be impossible to satisfactorily remove the tumor. Since this tumor is rather slow growing and is sensitive to deep x-ray therapy, an indirect approach to the problem may be used with satisfying results. The block of the cerebro-spinal fluid pathway can be relieved very satisfactorily by performing a Torkildsen procedure. This procedure by-passes the area of the block by means of a rubber catheter placed from the lateral ventricle through a burr hole and proceeds subcutaneously to the sub-occipital region where it is led into the cisterna magna. Following the Torkildsen procedure, deep x-ray therapy of the tumor is carried out. Satisfactory relief of symptoms and long periods of survival may thus be obtained. Since any attempt to approach this tumor for the purposes of biopsy would present the same hazard as exposure for the purposes of removal, it is impossible to obtain tumor specimens before the institution of x-ray therapy.



6. Lateral x-ray of patient 5 years following insertion of Torkildsen tube and x-ray therapy. Patient asymptomatic at present.

MISCELLANEOUS

Among the less frequent tumor groups in children should be included the metastatic tumors. Neuroblastoma may metastasize to the cranium and particularly to the orbit.

Von-Recklinghausen's disease, as in adults, may present with tumors of varying pathologic type. Among these, the gliomas of the optic nerve and tumors of the optic nerve sheaths are of importance. Tumors of the lymphoblastoma series may also involve the orbital or cranial compartment.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of brain tumors in children brings in a large array of unrelated conditions which may mimic or mask the signs of brain tumor. Every year a number of brain tumor cases are initially felt to be victims of poliomyelitis. The resemblance is only superficial. The child with poliomyelitis has evidence of a lower motor neurone disease with flaccidity of the involved extremity or muscle group and decreased or absent deep-tendon reflexes. No sensory changes are present. There is muscle tenderness and pain. Stiffness of the neck may be present in either condition but is much more prominent in poliomyelitis. Headache, vomiting and diplopia are not ordinarily seen with poliomyelitis. Papilledema is an additional sign of increased intracranial pressure. The gait disturbance and difficulty with balance of the child who harbors a posterior fossa tumor cannot easily be confused with the gait of the poliomyelitic child who shows lower motor neurone involvement of one or more muscle groups. The typical spinal fluid findings are helpful in differentiating the two conditions. The roentgen signs of increased intracranial pressure are also of great importance.

Brain stem tumors may be confused with non-specific virus encephalo-myelitis primarily involving the brain stem. A steadily progressive involvement of the various cranial nerve nuclei plus involvement of the long tracts in the absence of signs of inflammation should strongly suggest the presence of a brain stem tumor.

Another interesting differential problem involved the arterio-venous anomalies which may be seen in children. There have been two extensive arterio-venous anomalies in our series of cerebral lesions in children. These produced diffuse cerebral swelling

with papilledema and ventriculographic defects suggesting brain tumor. If there is a past history of seizures and the presence of a developing neurologic lesion, a non-neoplastic lesion such as an arterio-venous anomaly might be suspected in contradistinction to a tumor.

Subdural hematoma both in infants and children is an extremely important part of the differential problem. There may be no history of trauma so that the patient presents again with the story of progressive headache, vomiting and perhaps some gait disturbance. In the very young child with an open fontanel and suture lines, the diagnosis can easily be made by fontanel puncture. In the older child, one must resort again to x-rays of the skull followed by ventriculography. If the history of trauma can be elicited, this is a great help in the differential diagnosis.

Degenerative lesions must be considered. Progressive loss of intellectual and motor function accompanied by seizures strongly suggests a degenerative lesion. In Tay-Sach's disease, a cherry red spot at the macula will be helpful in establishing this possibility from clinical examination alone. However, this finding is not always present. Detailed neurologic study is an important part of this differential diagnosis. The presence of a large degree of cerebral atrophy plus the typical clinical pictures rules out brain tumor and strongly indicates a progressive degenerative lesion.

Meningitis should be easily differentiated by the onset of an acute infectious illness with fever, stiff neck and typical spinal fluid findings. A brain abscess will produce the signs of increased intracranial pressure plus evidence of an inflammatory lesion. Some elevation in the white blood cell count in the peripheral blood may be seen together with an elevated white cell count in the spinal fluid. A stiff neck may be present and often a possible source for an abscess is evident.

Perhaps the most important part of the differential diagnosis of brain tumors in children is the realization of the frequency with which they may occur. One should condition himself to consider this prom-

inently as a differential possibility in the diagnosis of cerebral lesions in children.

DIAGNOSTIC STUDIES

The diagnostic study of a child suspected of having an intracranial tumor proceeds along very logical lines. Obviously, the study begins initially with a carefully taken history in which careful attention is given to the signs suggestive of increased intracranial pressure or focal neurologic deficits. The chronology of development is extremely important; also the rapidity with which symptoms have developed and whether or not progression or regression is taking place.

The neurological examination in the infant and young child may be difficult. However, all of the essential information can be obtained with patience. Inspection may disclose that there is obvious enlargement of the head or that the child does not move one side as well as the other. Palpation of the head may reveal widening of the suture lines and confirm the visual impression of a bulging fontanel. Macewen's Sign or the "cracked-pot sound" suggest the presence of internal hydrocephalus. Cranial nerve abnormalities such as the sixth nerve or a third nerve paralysis will suggest the presence of increased intracranial pressure or, in the case of the third nerve, direct pressure. Facial weakness, either unilateral or bilateral may suggest the presence of a brain stem tumor. Difficulty in swallowing and dysarthria suggests involvement of the lower group of cranial nerves such as may be seen in a pontine and upper medullary tumor. Ataxia and weakness can be detected without difficulty even in the very young child. Reflex abnormalities are also easy to elicit. Sensory findings are difficult to elicit and evaluate in the young child but occasionally they will be helpful. The presence or absence of head tilting and gait disturbance should be observed.

X-rays of the skull are of extreme importance in all suspected cases of brain tumor in children. The x-ray may reveal evidence of increased intracranial pressure such as increase in the digital markings and widening of the suture lines as well as erosion in specific areas of the skull such as the dor-

sum sellae and sphenoid ridge. It should be mentioned that the mere presence of digital markings in the skull x-ray does not constitute sufficient proof that there is increased intracranial pressure since occasionally this is present to a mild degree in young children. Abnormal intracranial calcifications are not infrequently seen particularly in craniopharyngiomas and also in astrocytomas and ependymomas. In gliomas of the optic nerve, the unilateral erosion of one optic canal is of great importance in establishing the diagnosis.

Spinal puncture has a very limited application in the diagnosis of intracranial tumors in children. This stems from the fact that most of these tumors are associated with increased intracranial pressure. Performing a spinal tap in the presence of elevated pressure may produce jamming of the cerebellar tonsils against the medulla or a temporal lobe pressure cone with pressure on the midbrain with coma and death. This is a very real danger and therefore a spinal puncture is contraindicated whenever increased intracranial pressure is suspected.

The electro-encephalogram has only a limited diagnostic usefulness in posterior fossa tumors. Since the clinical and roentgen signs of these tumors are quite clear cut, the less definitive electro-encephalographic evidence is of little real value. However, in cerebral tumors in children the presence of a unilateral delta wave focus may be of great assistance.

Contrast studies are essential not only in giving final proof of the presence of a suspected intracranial neoplasm but of determining its size and position. The most useful contrast study in children is ventriculography. In the very young child with an open fontanel this can easily be performed by a puncture with a No. 20 needle through the lateral angle of the anterior fontanel. An exchange of fluid and air is carried out and ventriculographic films are taken in the various standard positions. In the older child, a trephine opening in the skull is necessary in order to permit the introduction of the ventricular cannula for the exchange of fluid and air. Since by far the largest group of tumors in children is lo-

cated in the posterior fossa and tends to produce an internal hydrocephalus, a ventriculogram will very satisfactorily demonstrate the ventricles under increased pressure as well as the dilated ventricular system with absence of filling in the aqueduct and fourth ventricular regions. Ventriculography is not a hazardous procedure. However, in the child who definitely has a posterior fossa lesion, ventriculography must be followed either by ventriculostomy drainage for several days or immediately by definitive craniotomy with removal of the tumor.

The use of arteriography is applicable to children. This may be done by the open or the percutaneous route. It has its greatest application in the suspected presence of arterio-venous anomalies or in cerebral hemisphere tumors. Diodrast or hypaque may be used.

Pneumoencephalography is not ordinarily employed on our service in the diagnosis of brain tumor because of the danger of tentorial and foramen magnum pressure phenomena. However, pneumoencephalography may be most helpful in outlining the midbrain and pons in cases of suspected brain stem tumor. Normally the distance from the anterior surface of the pons to the floor of the fourth ventricle is 3.5 centimeters.⁵ If there is widening of this distance with obliteration of the pontine cistern and posterior migration of the floor of the fourth ventricle, then there is adequate proof of the presence of a brain stem tumor.

TREATMENT

As has been indicated in the foregoing sections, the treatment of brain tumors in children as well as in adults is primarily surgical. Since the largest proportion of these tumors occur in the posterior fossa, the tumor is approached by the sub-occipital route. The child is positioned prone with the head in the cerebellar headrest in moderate flexion. The most widely used incision is a curving incision extending from one mastoid process up to a point one cm. above theinion and curving down to the opposite mastoid process. This gives access to all parts of the posterior fossa. The sub-

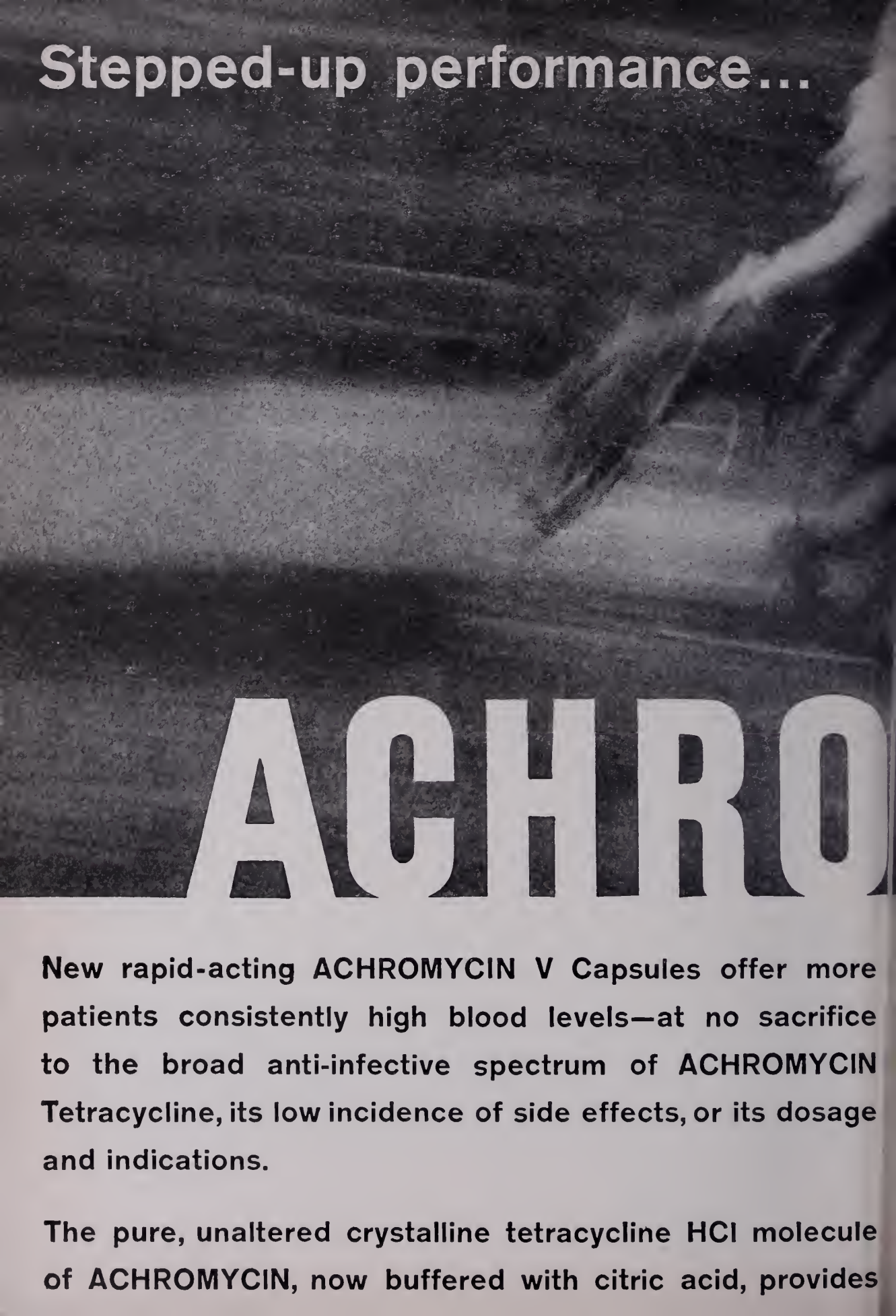
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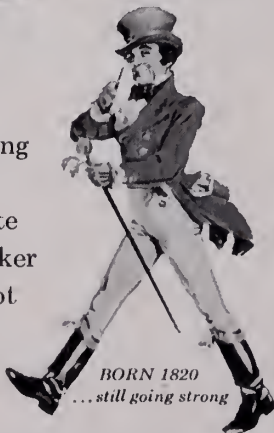
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occipital muscles are stripped away from the occipital bone and a craniectomy is done. The dura is opened over each hemisphere and the occipital sinus is secured prior to division with either silver clips or silk ligatures. With the exposure thus afforded it is possible to inspect the fourth ventricle, vermis and either cerebellar hemisphere. The cerebello-pontine angles are also accessible should exploration in this region be advisable.

The medulloblastomas and astrocytomas are usually evident in the midline or extending out into the cerebellar hemisphere. The tumor is removed, depending on its pathologic type, with a combination of suction dissection and piecemeal removal with biting forceps. One of the most important steps is to unblock the aqueduct in order to reestablish spinal fluid circulation. Following completion of the tumor procedure, the dura may be either left open or closed. A layer closure with silk is carried out. Frequently, a ventriculostomy tube is left in place in order to keep the ventricles decompressed while the spinal fluid circulation is reestablished.

A midline incision is also a useful approach, particularly when one is quite certain that the tumor is located in the fourth ventricle or in the midline vermis. This incision does not permit the possibility of wide exploration over the cerebellar hemispheres or in the angles should this be necessary. Here again the individual situation plus the preference of the operator will dictate the choice of approach.

In hemisphere tumors, the surgical approach is dictated by the location. A standard horseshoe-shaped osteoplastic flap is turned. In the infant this may be done with a pair of heavy scissors. In the older child a standard adult-type of flap using burr holes is necessary. In these instances, as complete a tumor removal is carried out as possible depending on the anatomic location with which one is dealing.

X-ray therapy plays a very important part in the handling of brain tumors in children. This is particularly true in regard to the medulloblastomas. These tumors

are highly malignant as has been pointed out. They are also among the most sensitive to irradiation. Unfortunately, cure cannot be accomplished but the combination in these tumors of partial or complete surgical extirpation plus irradiation will give the longest possible survival. As has been previously indicated, a total of 3,000 r to the tumor site plus an additional 3,000 r to the remainder of the cerebro-spinal axis is the treatment of choice. The astrocytomas show little or no response to x-ray therapy and it is probably not indicated in this group. In the ependymomas, depending on the individual situation and the completeness of surgical removal, x-ray therapy may be indicated. Here again, 3,000-4,000 r is the usual dose.⁵ X-ray therapy alone, without prior surgical attack, is not advisable. In the absence of partial or complete tumor removal with the decompression thus afforded, fatal cerebral edema might ensue. In addition, of course, one does not know the tumor type and may therefore irradiate a totally insensitive tumor.

Mention has been made of the Torkildsen procedure in posterior third ventricle lesions. This shunting procedure is most effective when the tumor is located in this region. Should the tumor, however, be present in the lower end of the fourth ventricle and cisterna magna region with obliteration of this region, such a shunting procedure will not be effective. Recent developments in the field of hydrocephalic shunting procedures have given us a more effective means of handling this problem. A shunt from the ventricle to the jugular vein will satisfactorily decompress such a distressing and difficult situation.

PROGNOSIS

The prognosis of brain tumors in children will, of course, depend on the individual tumor type primarily. Unfortunately, the more benign types of tumor seen in adults, such as the acoustic neuroma, the meningioma and the chromophobe adenoma of the pituitary gland are rarely seen in children. The astrocytomas, however, do offer a better prognosis than most of the remaining group of tumors in children. Satisfactory

survival in terms of years may be accomplished. Even in the medulloblastoma group, fairly long survivals have been achieved after the combination of surgical extirpation and x-ray therapy which has been outlined. In our own group of tumors, there are two seven and eight year survivals. The ependymomas offer an intermediate grade of malignancy. The brain stem gliomas offer the most discouraging outlook since these are only moderately sensitive to irradiation and, of course, are totally unapproachable surgically. However, as in all other fields of neoplastic disease, the continued

effort at better handling of these distressing problems will eventually result in improved methods of treatment with longer and longer survivals.

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TREATMENT OF ECZEMA VACCINATUM WITH VACCINIA HYPERIMMUNE GAMMA GLOBULIN*

WILLIAM F. NETH, M.D., RAY G. SARVER, M.D. and
RICHARD A. KAHLBAUGH, M.D.

Eczema vaccinatum, or eczema secondarily infected with vaccinia virus, is an alarming and sometimes fatal infection. It is characterized by the sudden appearance of umbilicated varicelliform vesicles principally on the sites previously involved by atopic dermatitis. High fever and glandular enlargements are often present in an acutely ill patient. The vesicles become hemorrhagic or pustular and appear in crops for several days to a week.

Until recently there was no specific treatment for eczema vaccinatum, but the complicating bacterial infection could be treated with antibiotics. However, in 1953 Kempe and Benenson first reported the production of passive immunity to vaccinia in newborn infants.¹ In 1955, Barbero et al. reported the use of vaccinia hyperimmune gamma globulin in the treatment of vaccinia gangrenosa.² The following case report illustrates the successful use of this hyperimmune serum for eczema vaccinatum.

CASE REPORT

A six-month-old negro male infant was admitted to the hospital on September 12, 1956. Throughout his life he had infantile eczema, which had become quiescent during the two months prior to admission. Thickening of the skin and pruritus remained during this time. There was no family history of eczema, but a grandfather had asthma.

At a Well Baby Clinic on September 4, 1956, eight days prior to admission, the patient received a smallpox vaccination on the left deltoid area. Vesiculation and crusting were noted on the fifth or sixth day. In the following two to three days secondary vesicles developed about the vaccination site, on the left scapular region, right elbow, and right groin. The groin area was not previously involved by eczema. He had been febrile four days prior to admission and for two days had been vomiting and eating poorly.

On admission, examination revealed a slightly pale, well-developed, well-nourished, negro male infant who appeared acutely ill and mildly dehydrated. The temperature was 103.4° F the pulse was 126, the respirations were 50, and his weight

was 8.5 Kg. The skin showed generalized thickening in the typical areas for atopic eczema, including the cheeks, antecubital and popliteal spaces, and the back of the neck. No evidence of vesiculation or weeping was present. Multiple umbilicated, pustular lesions were present about the primary vaccination site. Similar lesions were found on the left scapular region, right elbow, the inner aspect of the right thigh and the groin, where the skin showed no evidence of eczema. There was generalized cervical, axillary, and inguinal adenopathy. The tip of the spleen was palpable and the liver edge was felt 1.5 cm. below the right costal margin. The remainder of the physical examination was normal.

LABORATORY FINDINGS:

Hemoglobin 8.1 gm.; hematocrit 28%; white blood count 11,700, polys 23, bands 17, lymphocytes 53, monocytes 7, eosinophiles 3. The urinalysis was normal. Cultures of the naso-pharynx and lesion on the thigh revealed a staphylococcus aureus, coagulase positive, sensitive to penicillin and tetracycline. Blood cultures were negative. A culture of the lesion on the right thigh, taken on admission, was sent to a virus diagnostic laboratory. Typical vaccinia lesions were seen on chorio-allantoic membranes of embryonated hen eggs inoculated with this material. The acute phase hemagglutination inhibition titer was 1:10 dilution on September 12, 1956. The convalescent serum taken on September 22, 1956 was 1:160 dilution.

Hyperimmune vaccinia gamma globulin (5 cc or 0.06 cc/Kg), obtained from Dr. C. Henry Kempe at the University of California Medical School, was given intramuscularly about twenty-eight hours after admission. Supportive treatment consisted of tetracycline, hydration, and protection of the skin from further scratching and trauma.

On the day after admission the patient developed a new lesion on the right elbow. No additional lesions developed after the gamma globulin injection. After three days his temperature returned to normal and remained normal until discharge. Repeated injections of immune gamma globulin were not indicated because the patient improved clinically and did not develop new lesions. The lesions became dry and crusted during his ten day hospital stay. Except for the primary vaccination site, most of the lesions had disappeared or were disappearing at the time of discharge.

DISCUSSION

Identical clinical syndromes may be produced in children with eczema by vaccinia and herpes simplex viruses.³ In 1887, Kaposi described a varicelliform eruption in children with eczema which he called

*From the Department of Pediatrics, Delaware Hospital, Inc., Wilmington, Delaware.

"eczema herpetiforme." Although this name was descriptive and the cause unknown, Kaposi is most often associated with eczema herpeticum in the modern literature.^{4,5} Some authors include both eczema vaccinatum and eczema herpeticum in discussions of Kaposi's varicelliform eruption, since the picture is not always distinguishable on clinical grounds.³

Eczema herpeticum is considered to be a primary herpes simplex infection in a child with eczema, almost always of the atopic dermatitis variety. Eczema vaccinatum is a generalized vaccinia in children with eczema in which normal as well as eczematous areas of skin are involved. In both diseases, there is much evidence of a viremia with widespread tissue involvement.^{1,2,6,7} Subsidence of the infection depends on the development of an adequate titer of neutralizing antibodies. Kempe feels that evidence for viremia in uncomplicated smallpox vaccination is not adequate. However, in cases with complications such as generalized vaccinia, vaccinia gangrenosa, and eczema vaccinatum, the evidence is overwhelming.⁷ His assumption is that certain persons fail to develop sufficient neutralizing antibodies normally present at the peak of the primary vaccination. A few of these patients may have hypogammaglobulinemia. Therefore, regardless of whether the concentration of gamma globulin in the serum is elevated, normal or absent, this defect might be "adequately corrected by therapeutic use of passive antibodies in large quantity in the form of hyperimmune vaccinia gamma globulin."⁷ For this reason, he has developed this gamma globulin for use in prophylaxis and treatment of this disease. The mortality rate in eczema vaccinatum is estimated to be 30-40%, especially in the first 2 years of life, and a specific agent for its treatment is most welcome.

An accurate diagnosis must be made or suspected as soon as possible, since this gamma globulin is currently available only through Dr. Kempe, who is evaluating its use. He has been kind enough to supply it, as he did in our case, if proper studies are done to prove the diagnosis. In his series, which is the only group with laboratory confirmation of the diagnosis, the only

fatalities were in cases of more than 5 days duration before gamma globulin was given.⁷

In vaccinia, a history of vaccination or exposure to a vaccinated child is usually obtainable, but herpes simplex virus is so widespread that it is usually impossible to be certain of a contact. In eczema herpeticum the lesions tend to develop in crops, but this in itself is not diagnostic. A useful procedure in trained hands is the skin biopsy, which will determine whether or not the lesions are due to viral infection, and, if so, the inclusion bodies of vaccinia, unlike herpes, are intracytoplasmic.³ A virus culture should be done, and acute and convalescent sera obtained.

There is a need for reemphasis of the danger in vaccinating a patient with atopic eczema or any chronic dermatitis. If vaccination must be done, because of some unusual exposure or risk of smallpox, or if vaccination is done inadvertently, it would seem wise to give hyperimmune vaccinia gamma globulin as prophylaxis. When the differential diagnosis between eczema vaccinatum and eczema herpeticum is impossible, it would seem advisable to give the gamma globulin. No specific therapy has been proposed for eczema herpeticum in which the mortality is much lower.

SUMMARY

1. A six-month-old infant with eczema vaccinatum, treated with vaccinia hyperimmune gamma globulin, recovered more quickly than would be expected without this specific therapy.

2. It is reemphasized that a child with active atopic eczema should not be vaccinated, and should be guarded against contact with fresh vaccination sites on other individuals.

The authors wish to express our appreciation to Dr. C. Henry Kempe of the Department of Pediatrics, University of California, for supplying us with the vaccinia hyperimmune gamma globulin used in treating this patient.

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EOSINOPHILIC GRANULOMA OF THE FEMORAL SHAFT RESEMBLING EWING'S SARCOMA*

WALTER L. BAILEY, M.D.

Differential diagnosis between benign and malignant tumors of bone can be extremely difficult. Eosinophilic granuloma, a benign tumor of bone, will at times exhibit all the clinical and roentgenographic features of a malignant tumor. Definite diagnosis is imperative so that treatment can be intelligently instituted, and adequate biopsy of the lesion is the chief means by which final diagnosis can be readily established.

Eosinophilic granuloma of bone is usually a well-localized single lesion with a definite histological appearance and of unknown etiology, having its origin in the medullary cavity of bone. It tends to expand, erode, and destroy locally. It must be differentiated from a number of lesions of the infectious, metabolic, developmental, and neoplastic category.

Eosinophilic granuloma arising in a long bone may closely resemble Ewing's sarcoma, the latter being a highly malignant tumor. Ewing's sarcoma arises ordinarily in the mid shaft of a long bone, most generally the femur, and gives rise to a characteristic, clinical, and roentgenographic pattern. The clinical features are pain, tenderness, swelling and loss of function occurring in an individual under twenty years of age. Eosinophilic granuloma occurring in the mid shaft of a long bone usually gives rise to the same symptoms. There is generally a difference in the time interval, the clinical course of the eosinophilic granuloma being a bit more rapid, a period of weeks instead of months.

Lesions which tend to erode and destroy bone will ordinarily give rise to the deposition of reactive new bone along the shaft. Not infrequently, because of the periosteal reaction and lamination, the new bone appears in the so-called "onion skin" manner, this being characteristic of the roentgeno-

graphic picture of Ewing's sarcoma. Hence, it is only by adequate biopsy and thorough examination of the tissue that exact diagnosis can be made.

CASE REPORT

A three year old white boy was admitted to the Delaware Hospital on July 26, 1957. He had been complaining of pain in the left leg for almost three weeks. There was no history of injury. His mother stated that he limped and was often awakened at night because of pain. On several occasions prior to his admission to the hospital he refused to walk, apparently because of discomfort.

Physical examination revealed a well-developed white child whose general physical examination was within normal limits. Examination revealed slight palpable thickening of the mid portion of the left thigh and mild tenderness on fairly deep pressure. The child voluntarily resisted motion of the left leg and thigh. There were no palpable inguinal nodes. There was no obvious superficial venous engorgement in the left thigh. His blood count and urinalysis were normal.

X-ray examination (Figure 1, A and B) showed an obviously thickened femur with a reactive type of bone paralleling the shaft. In the center portion of the femur an eroding destructive type lesion was visible. This roentgenogram strongly resembled Ewing's Sarcoma. Chest film revealed a normal heart and lungs.

On July 29, 1957, biopsy of the lesion was done. Roentgenographic control at biopsy was utilized to be certain that the material was taken from the lesion. The following gross findings were evident: The soft tissues were not remarkable. Over the shaft of the femur, there was a great deal of new bone formation, fairly soft in consistency and

*From the Department of Orthopedic Surgery, Delaware Hospital, Wilmington, Delaware.



FIGURE 1A



FIGURE 1B

somewhat edematous. The lesion itself contained a grayish brown material which after curettage did not hemorrhage unduly. Cultures from this lesion were negative. The curettings from the lesion, pieces of cortical bone removed in order to gain access to the lesion, and appropriate sections of the reactive new bone were all examined.

Pathology Report: A small amount of material was submitted and consisted partly of soft brown and yellow amorphous material in which numerous small irregular fragments of bone and bony spicules were noted.

Microscopically the tissue presented areas of reticuloendothelial (histiocytic) cell proliferation appearing as solid sheets, these being interspersed with eosinophiles which contrasted sharply with the few neutrophils and lymphocytes which were present. The picture was that of a "granulomatous" lesion and not of a malignant tumor. Because of the numerous eosinophiles present in this lesion, it could be properly classified as eosinophilic granuloma of bone.

Many tables of classification include eosinophilic granuloma as a member of the histiocytic diseases suggesting its possible relation to Hand Schüller Christian's Disease.

SUMMARY

An interesting case of eosinophilic granuloma of bone, a benign lesion resembling Ewing's sarcoma of the femoral shaft, has been reported together with its outstanding clinical, pathological, and roentgenographic features. The necessity of biopsy as a means of establishing definite diagnosis has been demonstrated. Treatment of such lesions by high voltage x-ray alone without an adequate biopsy should never be undertaken.

The author expresses grateful appreciation to J. F. Krafka, M.D., Senior Resident of the Department of Pathology, Delaware Hospital, for his assistance in this case report.

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THE DOCTOR AND HIS TAXES*

H. L. BROWN**

It was, of course, a pleasure to be invited here. More, though, it is an honor because frankly I marvel always that you physicians can remember and pronounce the names of the ills that afflict us let alone cure us of them. And for a reason which you will see later, I have asked Mr. Attilio Porcelli, of our office, head of our Audit Division, to come with us. This is Mr. Porcelli. He is quiet right now but he will give forth a little later.

I am supposed to speak words of wisdom which will make your annual accounting to the Internal Revenue Service an easy even though not a pleasant one, but I will confess straight off that I am not sure that there is a great deal I can tell you, which shows the confidence we have in the physicians as a body.

It goes almost without saying that you must keep records. Fundamentally your professional bookkeeping is a simple matter. On the income side you have your fees, and on the other side of the ledger you have expenses, such as salaries of office assistants and nurses, office rental, drugs and supplies, professional dues, repairs, depreciation, travel expense, including the cost of operating your automobile, electricity, magazines for your reception room, preferably, according to rumor, six months old, and the inevitable miscellaneous items.

Now, what problems do you as doctors have with these items? First of all, we hope that you are lucky enough not to be faced with the main problem that most of us meet, where we will find the money to pay the taxes; but if we pass that hurdle, we have only found two or three areas where questions may generally arise. Those are, your receipts, your automobile use, and the deduction for costs where a physician uses part of his residence as his office.

As to receipts, we ask no more than that you make a strict accounting of the fees collected. And I can say that the situation here is vastly improved over what it was fifteen years ago. Then there was an unfortunate laxness in this respect. Now, we believe that practically all of you have taken steps to make sure that your fees are properly booked, which is nice for you and for us.

As to the cost of operating your automobiles for professional use, we ask only that you be reasonable. If you have two automobiles, one for professional and one for personal use, there is no problem. All the depreciation on the car and gasoline, oil, repairs, insurance, and so forth, are of course deductible.

If you have only one automobile — and I may be insulting you when I suggest that you possibly have only one — there must be an allocation of depreciation and operating expenses of that car between professional and personal use, of which only the professional part, of course, is deductible. We have found that quite generally you are fair in making this allocation between professional and personal use.

The third item concerns an office in your home. The procedure here is to deduct as professional expense a portion of the depreciation on the residence and of the general operating and maintenance charges on that house. The pro-ration is generally based on the ratio of office space to total space in the home. Naturally, any repairs which apply only to the office quarters are deductible in full. On the other hand, those that apply only to the rest of the house and don't affect the office are non-deductible.

Thus, for example, roof repairs or heating system repairs would be pro-rated, part business and part personal; whereas painting and papering, for instance, in the living quarters only, would be a personal expense.

*Presented at the Annual Meeting, Medical Society of Delaware, Wilmington, October 1957.

**Director of Internal Revenue Service, Wilmington.

Now then, so far as I know those are the items which mostly concern us. But each year we have a number of delinquents in the securing of a stamp to prescribe or administer narcotics. This stamp, which is valid from July 1 to June 30 of the following year must be obtained prior to the time when you use or prescribe narcotics. We know that the failure to purchase these stamps is invariably an oversight, but you may save yourselves a minimum penalty of \$5.00 and us some unnecessary work in determining how severe that penalty should be if you will purchase this one-dollar item timely.

It may be well to mention another matter which is common to you and all other taxpayers, and that is, the filing of a declaration of estimated tax. This return is due on or before April 15 of each year. With it you should make payment of at least one-fourth of the income tax you estimate will be owed for that year. The other installments are due on June 15, September 15, and January 15, the following year.

Now, you may amend this declaration upward or downward at any installment date to reflect a changed income situation. Roughly speaking, if you have an established practice so that you anticipate a fairly steady income, a safe rule is to make this original estimate based on last year's tax liability. The reason is that if you declare and pay an estimate equal to last year's tax, there will be no penalty for under-estimation even though your income may far exceed the income of the previous year, and the tax of course will be that much greater. Otherwise the Internal Revenue Code provides a six per cent penalty on the difference in tax between the estimated amount paid and seventy per cent of the actual tax.

Let's get to figures. Let's assume that for the year 1957 your income tax liability is a measly \$100,000, and that you have declared \$60,000 as your estimate of income tax for the year '57. Now, 70% of the actual amount of \$100,000 tax is \$70,000. You have made an estimate of \$60,000. You would be subject to a penalty on the \$10,000 difference. It is worth saving.

I think a word would not be amiss with respect to your rights in the event of a dispute concerning your tax liability. Strangely enough, it sometimes happens that we in the Internal Revenue Service make a faulty diagnosis and prescribe the wrong treatment. If we do and you disagree with the findings of our agent or auditor, you will receive a notice of our proposed changes on those disputed points. You then have ten days in which you can ask for an informal conference on these disputed items in our office. Most of the time this informal hearing will result in an agreement because I can tell you frankly that we are as anxious as you are to settle cases lawfully at the lowest possible level. It not only saves you bother and money in the way of litigation, if we may call it that, but permits us to get on with some other taxpayer.

Perhaps as a result of this conference you are still not satisfied. Then we will furnish you with a copy of our report and give you thirty days in which to file a written protest. This protest will be screened by our conference coordinator. If there are new facts or precedents presented, he will either refer it to the agent to verify the facts or he may allow the protest and settle the case himself.

Now, if there is no agreement at that point, the protest, along with the full case file, will at your request be forwarded to our Regional Appellate Division in Philadelphia. They, too, will give you a hearing at a time convenient to you. From there you may carry it on to the Supreme Court — I hope none of you have to do that.

There is an alternate route. If you disagree with us, you can pay the tax, then file claim for refund, and if we refuse that claim, you can sue for recovery in the District Court or in the U. S. Court of Claims.

I have confined my remarks to your professional income. Perhaps in doing this I have over-simplified as did a C.P.A. who died some years ago, the senior member of a distinguished accounting firm. Mr. Jones was a man of few words who had received his certificate without examination at the time the C.P.A. Law was en-

acted in his State, and very often at staff meetings there would be some audit point under discussion, and he would unlock his middle drawer, pull it out, glance down there, close the drawer, shake his head one way or another.

Finally, Mr. Jones died and the office could scarcely wait until he was cold to see what was this wonderful paper in his middle drawer. Well, they opened it and all they found in the drawer was a white sheet with big capital letters printed on it, saying: "Credits are on the right side, debits are on the left." (Laughter)

Probably I have omitted to cover some matters dealing with your professional income accounts which you would like to have discussed. Undoubtedly there are other tax problems aside from the professional end of it which you would like an answer to. That is the reason I brought Mr. Porcelli along. We now open our breasts to any questions you want to throw at us. Many of them I cannot answer. Very few Mr. Porcelli cannot. So if you have anything that is disturbing you, let us know and we will try to give you the answer. If we can't now we will give it to you later.

DR. POOLE: What about deducting a part of the second car that you have? For example, if your car breaks down and you have to use your wife's car for a day or two. Are you permitted to take a percentage of that car?

MR. BROWN: You can, of course. On the other hand, it is possible that sometimes you may use your professional car to go out to the country club. In other words, again it is a matter of reasonableness. If the use of your second car is worthwhile, makes it worthwhile to claim it, okay, but remember, by the same token you ought to deduct from your other car. So chances are you will be square with the board if you claim it on your one car.

DR. POOLE: In one part of your house you may be called upon to see some emergency patients late at night or over the weekend, and you maintain a separate office away from your home, but you may be called upon to practice from your home oc-

asionally during various parts of the year. Is a part of your house then deductible toward the upkeep of your house?

MR. PORCELLI: You say you have an office away from where you live?

DR. POOLE: My office is separated from my home. If I should be called upon to see patients during the weekend or late at night at my home, does that designate my home as an office, and is part of the expense of that, the maintenance of that deductible?

MR. PORCELLI: If you make it a practice to do that and it is necessary in the conduct of your practice, to utilize your home, I would say that to that extent it would be deductible. If you could very well see your patients in your office and you do it as a matter of convenience, then you would not be allowed the deduction.

DR. POOLE: Well, it would be partially a matter of convenience as well as a necessity?

MR. PORCELLI: Well, the law says what is ordinary and necessary in your business, in your practice. If it is ordinary and necessary for you to see your patients at home, and you say you have an emergency and you have to do it in that case, I would say yes. But if it isn't and you do it as a matter of convenience, we wouldn't allow it.

DR. POOLE: What the patient calls an emergency and what the doctor calls an emergency sometimes don't agree. Lots of times the patient thinks it is an emergency and therefore you see them immediately, when they could have been seen at your office the next morning. That happens frequently.

MR. PORCELLI: You are the one to determine.

DR. POOLE: What about entertaining professional colleagues? Is that deductible?

MR. PORCELLI: It goes back to the same definition, that it has to be ordinary and necessary in the conduct of your practice and it has to have some connection with it. My answer to you would be if it is necessary and ordinary in the conduct of your practice to entertain your colleagues, then it is deductible, but I just can't see where

it would be necessary or ordinary for you to entertain your colleagues in order to conduct your practice. Wouldn't you say so?

DR. POOLE: Under some circumstances I think it is, yes.

MR. BROWN: May I interject one thing here.

I have heard of cases where a Specialist, for example, entertained G.P.'s because they were supposed to funnel some business to him. I think that in some cases this has been allowed upon a showing that it was ordinary and customary in his community to do that, and that it was necessary in the conduct of his business, and could show, moreover, that some business did flow to him. It is a rather difficult thing.

You understand that every expense must be substantiated. So if you claim something like that, be prepared to have some good arguments for it.

MR. PORCELLI: Another feature, Doctor, that must be considered, is if the particular state under which you are practicing considers such an act to be unethical or against public policy, then we would not allow it. If it is unethical or against public policy, then we couldn't allow it, even though it is ordinary and necessary in your practice.

DR. REPMAN: Did I understand you to say that there is a penalty for under-estimating your tax even though at the end of the year you make a full return and pay the full tax?

MR. PORCELLI: That is correct, sir. The law provides a penalty for that, as Mr. Brown explained. You are required to estimate at the beginning of the year, by April 15, what you expect your income to be for the ensuing nine months, or eight and a half months. At that time you may state what you consider to be your best judgment.

At the end of June, at the end of September, and in January, if the facts indicate that you have been wrong, one way or the other, up or down, you may amend at that time your return.

DR. REPMAN: I understand that.

MR. PORCELLI: You can be safe, as Mr. Brown explained it to you, if your return for this year is based on your income for the prior year; regardless of the amount of income that you actually earn, you will not be subject to any penalty. The law provides that safeguard for you. But if you don't do that, that is, if you don't estimate as much income in this year as you reported the last year, if you feel your practice has dwindled and your income will not be as great, and then you under-estimate below 70% Mr. Brown told you about, you would be subject to a penalty, even though you filed a return.

DR. REPMAN: I understand the mechanics of it. A lot of these questions of deduction seem to be based on what is reasonable, what is usual in the community and what is common custom, and yet disregarding the actual ruling, does that seem to be a reasonable thing, to penalize someone for guessing wrong even though at the end of the year whenever you make your final return you make full payment? This is not fraud, this is just a poor guess. In the spirit of these other deductions, does this seem to be reasonable and usual?

MR. BROWN: I am not going to take upon myself to criticize either favorably or unfavorably the action of the Congress which passed this law. However, I can tell you what underlies that estimated tax requirement.

In 1943 we were all put on a pay-as-you-go basis. Since that time, if I get wages and salary, a certain amount of income tax is withheld from that each pay day and paid into the Treasury. It was to equalize in some manner the tax liability of self-employed persons, such as you, and have that money flowing in also during the year, at least in quarterly periods, that they put this declaration of estimated tax into the law.

DR. LA MOTTE: I have two questions: One, is it true or is it false that the gentlemen who occasionally spotcheck the income tax returns work on a quota basis to justify the increased collections that they get from these spot checks? That is just a rumor I have heard.

Let me give you my second question: Second, in the deduction of a professional car, is this scheme of rental of a car for a doctor on a professional basis a fully deductible item just as the depreciation of his own car plus the full deduction of the cost?

MR. PORCELLI: Your first question, if I understand it correctly, is that we follow a practice of selecting returns, and the agent or the person who selects the returns gets a premium if he picks out a certain amount —

DR. LA MOTTE: Yes.

MR. PORCELLI: No. Our method of procedure is this: We have a number of returns in this district which require auditing. Our personnel is not sufficiently large to audit every one of those returns. We have persons who are trained in the task of going through these returns and selecting only those which on the face appear to have something wrong with them. Of course, the very large returns of earnings over a certain amount, are automatically verified. But of course the agent who is given the return to audit may look at it and accept it if he is familiar with the person who has filed that return, is familiar with the business, or the profession. He may accept it and not do anything with it. Other returns which are not in that category will only be selected for audit if they indicate that there is something wrong with them. But the agent who is making the selection, he doesn't even audit the return. He doesn't know until months later what the results of the selections were. So there is no connection between the selection of his return and the final results.

We try to do a good job, and we are looking at it from the viewpoint of getting the return correct. We are not so much interested in getting additional revenue, although in most cases that is what happens, as much as we are interested in getting the return correct. Does that answer your question?

DR. LA MOTTE: I think so.

MR. PORCELLI: Now, with respect to the next problem that you asked, it doesn't make any difference whether you own your

car or whether you rent it. If you use your car in your profession, and you can show that you do, we will allow you either the depreciation of your personally owned car or the amount that you pay as rental, for the rented car.

DR. FRELICK: In the final analysis then who decides what is reasonable, the man who is doing the auditing or the physician?

MR. PORCELLI: Well, as Mr. Brown explained it to you, we have certain rules that we apply. We also have our experience to guide us. You are not the only doctor that we check. We have others of your colleagues that we check, and more or less the agent who has checked a lot of the doctors' returns reaches a point where he can more or less make up his mind as to what is fair and what is reasonable.

But even in that stage the agent may be wrong, and as Mr. Brown explained to you, you have the right to protest. If you feel the agent is leaning backwards and not allowing you what you think is fair, you can protest his findings and have the agent's superior examine it and decide whether or not the amount which is allowed to you is fair. If you have records, Doctor, to substantiate the deduction, I don't think you will have any difficulty in proving them. It is only in the event that you come in and ask for a certain amount of deductions, and you have nothing to show that you actually have those expenditures, that our problem arises.

DR. FRELICK: I have been told that if one questions too carefully and objects to decisions made by the man who does the auditing, that this is going to subject you to future spot auditing at more frequent intervals in the future and be more of a headache than otherwise. Is this so?

MR. PORCELLI: No, that isn't so, because as I said to the other doctor before, the person who selects your return may not be familiar with you, may not be familiar with the fact that your return for a prior year was selected. He wouldn't know. He is only selecting that year's return because something in that particular return appears to be out of line, except in the instance I

told you where, if you are in a position of having a very large income, your return will automatically be selected for audit. But even in that case as I said before, the agent has discretion as to whether or not he should audit the return. Even though it was selected because of a large amount of income, he may find there is no necessity to check it because everything appears to be in order, in which case it will be accepted and you will be notified that the return was accepted as it was filed.

Have I answered your question, Doctor?

DR. FRELICK: In part.

MR. PORCELLI: Then if I haven't answered it, ask it again and I will try to answer it.

DR. FRELICK: I sort of object to the idea that a man is considered guilty until proven innocent. It doesn't sound to me as if this is the American approach to things, and yet this is the approach I recently had with an auditor.

MR. PORCELLI: Are you talking in general or are you talking about your particular case?

DR. FRELICK: Well, I have heard other people say the same thing.

MR. PORCELLI: I can honestly say, Doctor, that we operate under the system I described. We have an open mind, at least I have an open mind, and I direct the people under my control to have open minds. But if you don't get the correct treatment in our office, and at any time you think you are not being properly treated, the case isn't being properly handled, my door is always open, and you can always come in and talk to me.

MR. BROWN: Me too.

DR. ALLEN KING: Occasionally we are confronted with the problem of how to advise a person if they have to take a trip or something is situate to their health or is a part of the treatment of some condition. Is there any way we can have access to rules concerning that or have some guidance? For instance, I have had patients who thought they might get income tax deduc-

tion for a trip to Florida because of psoriasis which is benefitted by sunshine, and those things do come up to us occasionally, and I wondered if there was some reference book or someone we can consult.

MR. PORCELLI: There have been a lot of cases, Doctor, on that issue that you might point out, and I think both Congress and the Treasury Department have liberalized it; in many instances where we used to not allow a deduction we now allow it. The trip must be in order to alleviate, to correct, the particular thing that the patient is suffering from, and not a pleasure trip.

DR. KING: Would that be all-inclusive, such a trip for the individual?

MR. PORCELLI: The meals and lodging would not be allowed, Doctor, because in that particular case he would have to have had his meals and lodging wherever he resided.

DR. KING: Transportation?

MR. PORCELLI: Transportation, additional expenses incurred in connection with going to that particular site, if it was beneficial to his health and necessary to cure him or arrest whatever was troubling him.

DR. MCGUIRE: I wanted to ask, what is the basis of that income that is automatically subject to spot check? There is a base figure, isn't there, above which everybody gets a spot check?

MR. PORCELLI: The exact figure, Doctor, I believe is around \$30,000.

DR. MCGUIRE: Is that gross or net?

MR. PORCELLI: I beg your pardon?

DR. MCGUIRE: Is that gross or net?

MR. PORCELLI: Net. That may apply to individuals — that figure changes with corporations, it is a much larger one with respect to corporations. I may be wrong about the amount, but there is an amount at which point all returns, fall into a category that we call automatic. They must be selected for audit, and the agent must look at them. We don't have any judgment here as to picking it up or not. They have to be picked up. An agent looks at it, and if

(Continued on page 52)

+ *Editorial* +

LUNG CANCER

For the past five years the medical profession has been divided into two camps. One believes that smoking is responsible for cancer of the lung; the other claims that there is no evidence to support this belief. Somewhere between these divergent groups are those who doubt that smoking is the cause of lung cancer but believe that it is one of several major factors.

One thing is certain—more data are needed to properly evaluate the status of this important question.

The National Cancer Institute and the National Office of Vital Statistics will undertake a study to collect information relative to smoking histories and additional diagnostic data on ten percent of all 1958 lung cancer deaths. This means that about one Delaware death certificate will be studied each month.

The forms and procedures to be used in writing to physicians and relatives of the decedent to obtain this information have been tested in Pennsylvania with satisfactory results. In that State, returns were received from 97 percent of the physicians and 94 percent of the families. The physician is queried first. This gives him an opportunity to contraindicate questioning the family informant listed on the death certificate if he feels that this is desirable. He may suggest the name of another relative. The letter to the family is sent about ten days after that to the physician.

This study should be supported wholeheartedly by our profession. Let us strive to make the Delaware record 100 percent. Our knowledge will grow in direct proportion to the data collected. If *you* are questioned about a death, your prompt cooperation is essential to the success of the project.

something appears to be wrong with it, it will be sent out for audit. If nothing appears to be wrong, the agent accepts it, you will be notified, and everything is closed.

DR. CASCELLS: In reference to the question Dr. Frelick asked, there is a general feeling that once you get on the tax collector's list you are very apt to remain there. I know a number of doctors who have been checked perhaps once in ten years and then almost yearly or every other year someone drops around to them to talk to them about their tax return. On the other hand, some have been in practice for ten years and have never received a visit from the Internal Revenue Service, people who are in comparable tax brackets, and one wonders why one person is checked repeatedly and another is not, unless it is bad to get on the man's list, and is it true you can't get off it?

MR. PORCELLI: I will have to repeat what I said before, that unless you have a very large income and you fall into that category that I told you about, your return was selected because something appears to be wrong with it.

Now, it is very possible that you are continuing the same practice year in and year

out of which we are complaining, and that is the reason your return is being selected every year for audit.

DR. CASCELLS: That doesn't quite answer the question. As a matter of fact, I am not involved in that situation. But people who are in comparable income brackets.

MR. PORCELLI: If you mean we have a black list of people we call on every year, you are wrong; we don't have such a list. If you think we have such a list, we don't have it.

DR. CASCELLS: There is a common supposition around town that there is such a list.

MR. PORCELLI: It is a wrong one, I can assure you. We don't have any black list.

Does anyone else have any questions?

(No response.)

MR. PORCELLI: Thank you very much.

CHAIRMAN MURRAY: The next discussion will be at 3:30.

(At this point the meeting was recessed until 3:30 o'clock, p.m.)

FRAIM'S DAIRIES

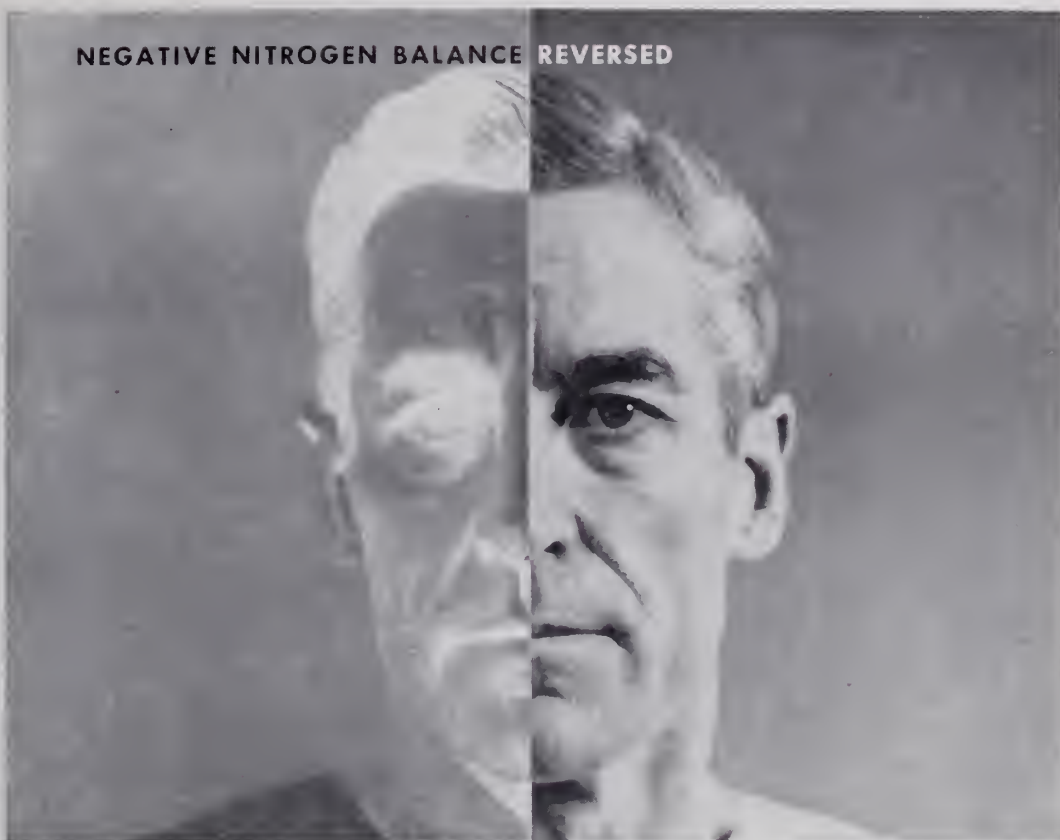
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1. Axelrod, A. E.; Beaton, J. R.; Cannon, P. R., and others: Symposium on Protein Metabolism, New York, The National Vitamin Foundation, Incorporated, (March) 1954, p. 100.

2. Proceedings of a Conference on the Clinical Use of Anabolic Agents, Chicago, Illinois, G. D. Searle & Co., April 9, 1956, pp. 32-35.

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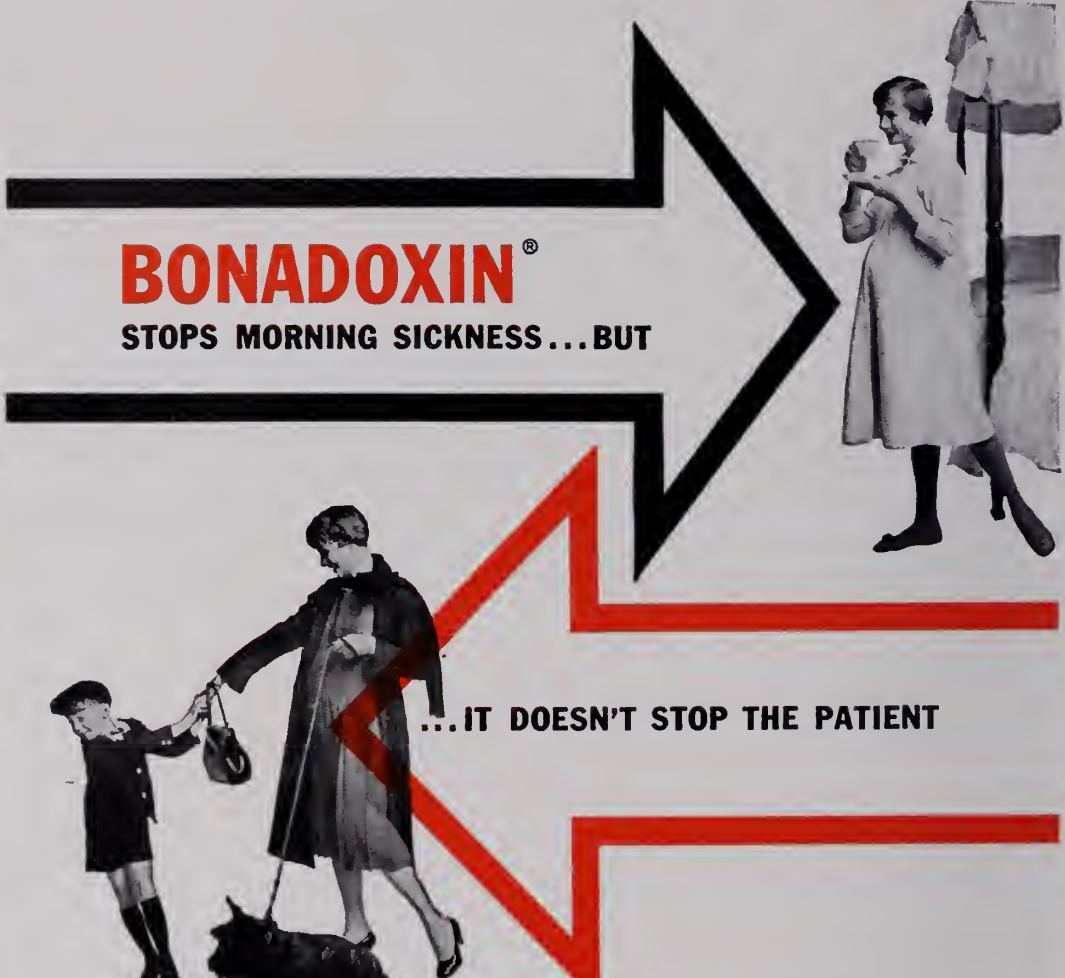
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Minnesota Med. 40:99 (Feb.) 1957.

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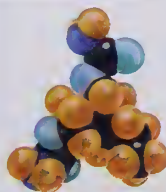
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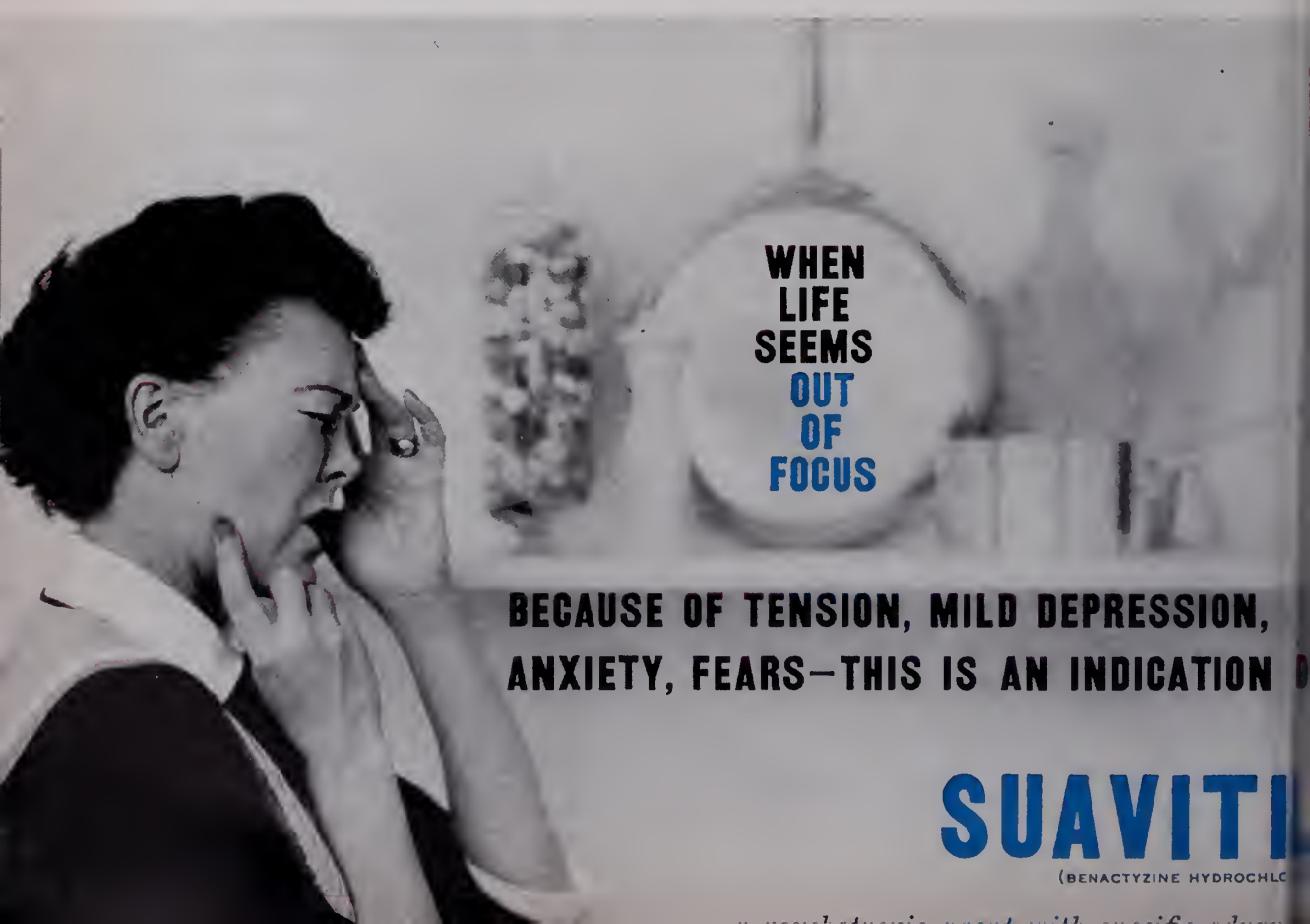
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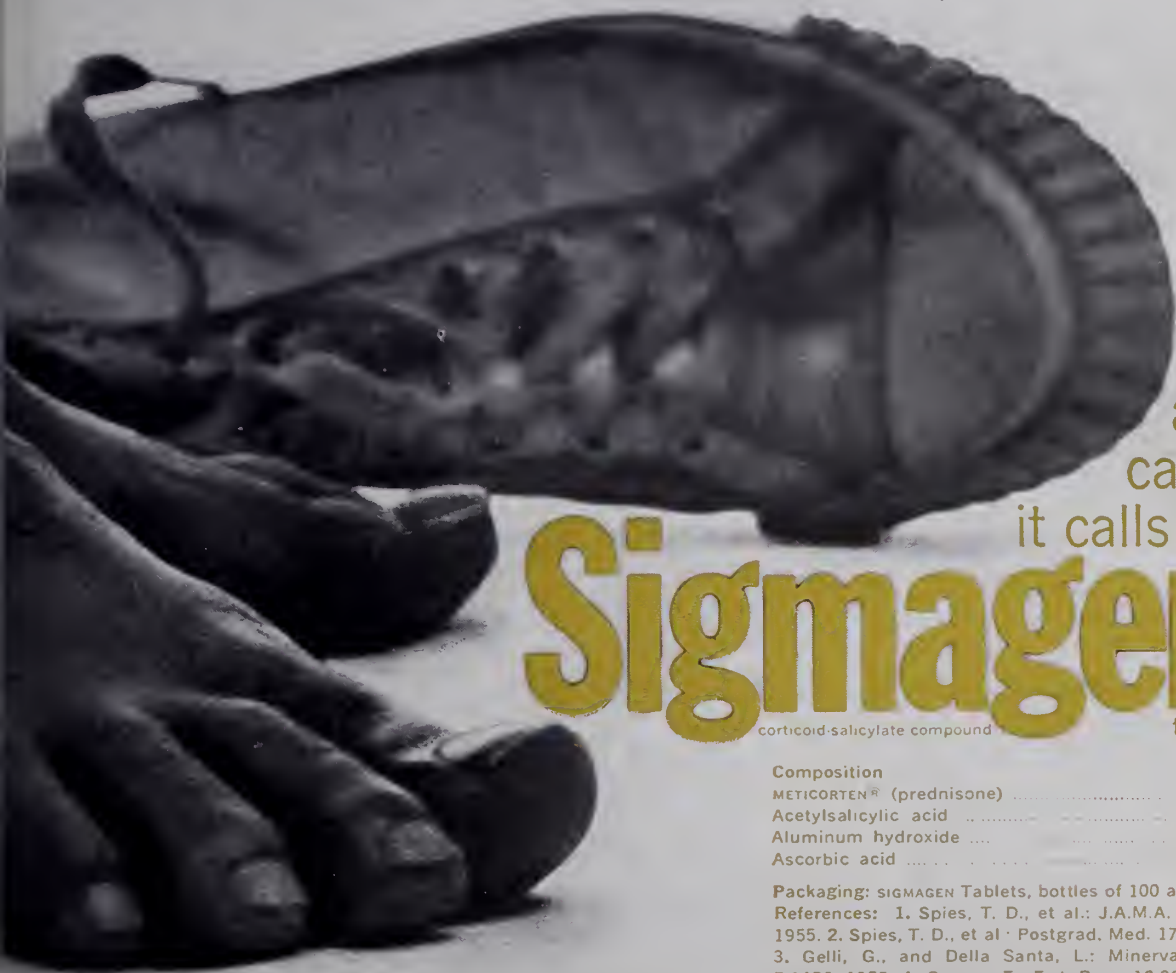
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References: 1. Spies, T. D., et al.: J.A.M.A. 159:645, 1955. 2. Spies, T. D., et al.: Postgrad. Med. 17:1, 1955. 3. Gelli, G., and Della Santa, L.: Minerva Pediat. 7:1456, 1955. 4. Guerra, F.: Fed. Proc. 12:326, 1953. 5. Busse, E. A.: Clin. Med. 2:1105, 1955. 6. Sticker, R. B.: Panel Discussion, Ohio State M. J. 52:1037, 1956.

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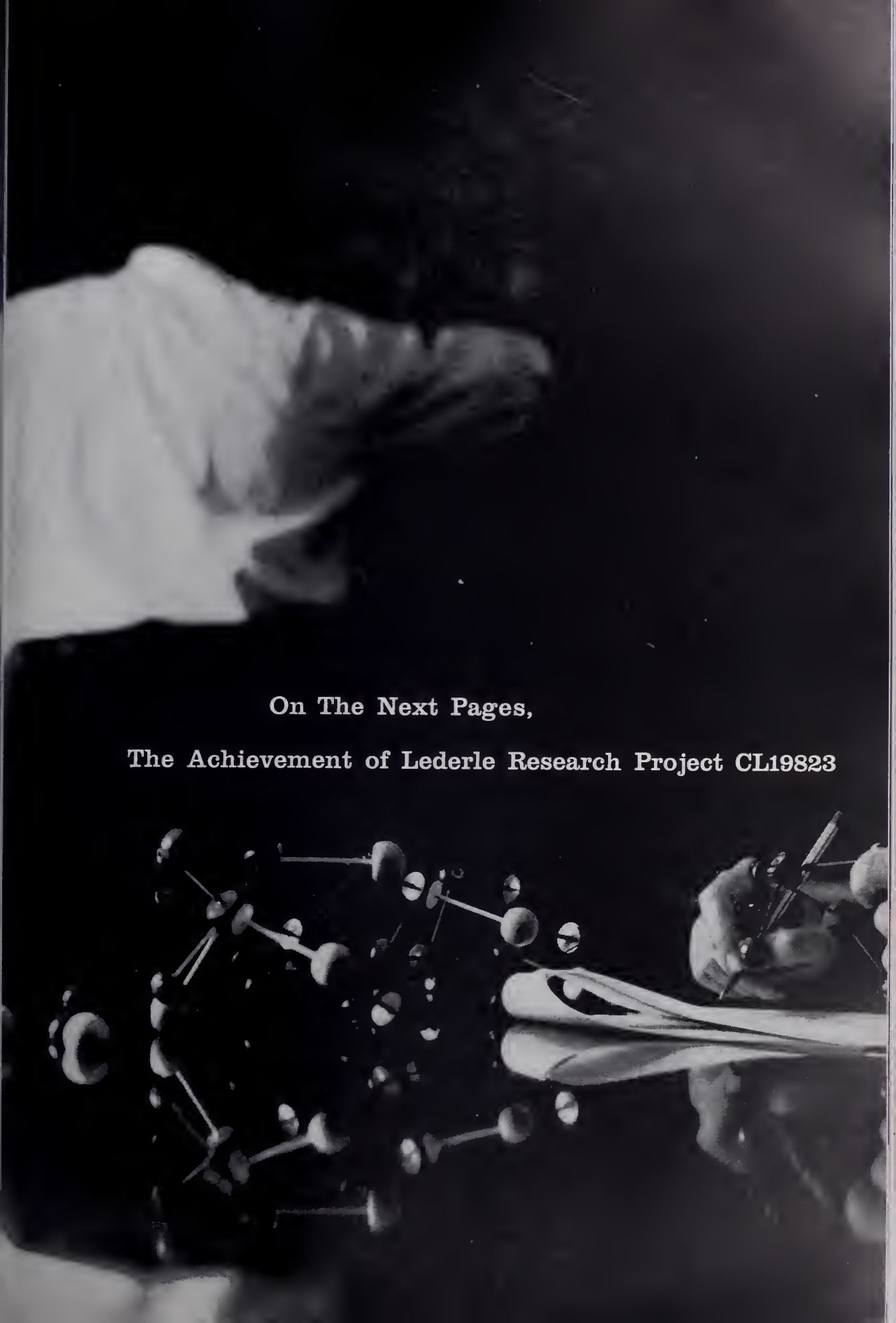
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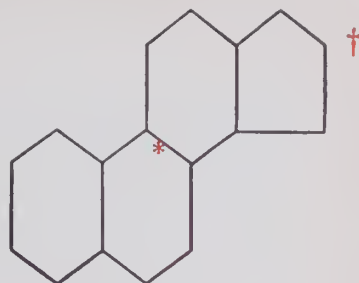
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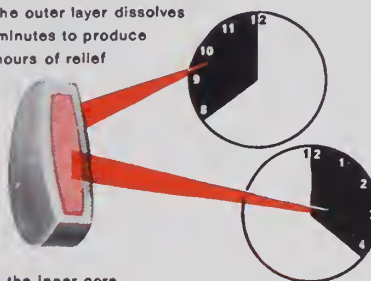
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Ford, R.V., and Moyer, J.H.: Rauwolfia Toxicity in the Treatment of Hypertension: Some Observations on Comparative Toxicity of Reserpine, a Single Alkaloid, and Alseroxylon, a Compound Containing Multiple Alkaloids, *Postgrad. Med.*, January, 1958.



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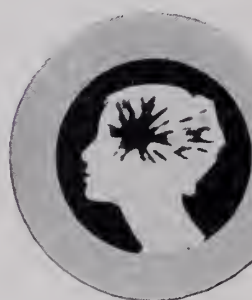
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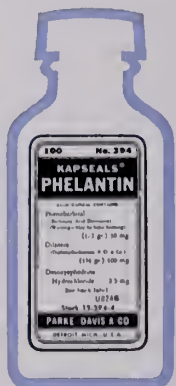
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SEARLE*announces...*

a superior psychochemical
for the management of both
minor and major
emotional disturbances



- more effective than most potent tranquilizers
- as well tolerated as the milder agents
- consistent in effects as few tranquilizers are

*Dartal is a unique development of Searle Research,
proved under everyday conditions of office practice*

It is a single chemical substance, thoroughly tested and found particularly suited in the management of a wide range of conditions including psychotic, psychoneurotic and psychosomatic disturbances.

Dartal is useful whenever the physician wants to ameliorate psychic agitation, whether it is basic or secondary to a systemic condition.

In extensive clinical trial Dartal caused no dangerous toxic reactions. Drowsiness and dizziness were the principal side effects reported by non-psychotic patients, but in almost all instances these were mild and caused no problem.

Specifically, the usefulness of Dartal has been established in psychoneuroses with emotional hyperactivity, in diseases with strong psychic overtones such as ulcerative colitis, peptic ulcer and in certain frank and senile psychoses.

- Usual Dosage**
- In psychoneuroses with anxiety and tension states *one 5 mg. tablet t.i.d.*
 - In psychotic conditions *one 10 mg. tablet t.i.d.*

NEW "Single-R

for U



- Symptomatic relief of aches, pains, fever, coryza, and rhinorrhea associated with upper respiratory tract infections.
- Prevention of secondary pyogenic infections due to tetracycline-sensitive organisms — which often follow viral infections of the upper respiratory tract.

Bristol

LABORATORIES INC. SYRACUSE, NEW YORK

MEDICATION

flu," "grippe," "virus" and the common cold

Tetrex[®]-APC with BRISTAMIN[®]

TETRACYCLINE PHOSPHATE COMPLEX WITH PHENYLTOLOXAMINE AND APC

Each TETREX-APC WITH BRISTAMIN Capsule contains:

A broad-spectrum antibiotic

TETREX (tetracycline phosphate complex) 125 mg.
(tetracycline HCl activity)

An established analgesic-antipyretic combination

Aspirin 150 mg.
Phenacetin 120 mg.
Caffeine 30 mg.

A dependable antihistamine

BRISTAMIN (phenyltoloxamine, Bristol) 25 mg.

Dosage: *Adults:* 2 capsules at onset of symptoms, followed by 2 capsules 3 or 4 times a day for 3 to 5 days. *Children, 6 to 12 yrs.:* One-half adult dose.

Supplied: Bottles of 24 and 100 capsules.



How to provide unsaturated fatty acids without dieting

With type as well as amount of fat in the human diet now assuming such importance, the new role of corn oil as a source of unsaturated fatty acids has prompted these questions:

1 What is the role of unsaturated fats in the daily diet?

answer: There is now ample clinical evidence that unsaturated fats tend to lower the serum cholesterol level of human subjects, whereas saturated fats have the opposite effect.

2 How much of the important unsaturated fatty acids does corn oil provide?

answer: MAZOLA Corn Oil yields an average of 85 per cent unsaturated fatty acids. 100 grams of MAZOLA will yield: 53 grams of linoleic acid and 28 grams of oleic acid; it also provides 1.5 grams of sitosterols, and only 12 grams of saturated fatty acids.

3 What is the best way to provide unsaturated fatty acids?

answer: By balancing the types of fat in the daily diet. Many doctors now agree that from one third to one half of the total fat intake should be in the form of a vegetable oil such as corn oil (MAZOLA).

4 How is corn oil most easily taken in the usual daily diet?

answer: There is no need to disturb the daily routine of meals or to have separate diets for individual members of the family. MAZOLA Corn Oil can be used instead of solid fats in preparing and cooking foods, it is also ideal for salad dressings.

5 How can I obtain further information on the value of corn oil as a source of unsaturated fatty acids?

answer: The subject is reviewed in the book "Vegetable Oils in Nutrition." Also available is a recipe book for distribution to your patients. It tells how to use corn oil in everyday meals. Both books will be sent free of charge to physicians, on request.



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 comprehensive control
 with **CREMOMYCIN[®]**

SULFASUXIDINE[®] PECTIN-KAOLIN-NEOMYCIN SUSPENSION

SOOTHING ACTION . . . Kaolin and pectin coat and soothe the inflamed mucosa, adsorb toxins and help reduce intestinal hypermotility.

BROAD THERAPY . . . The combined antibacterial effectiveness of neomycin and Sulfasuxidine is concentrated in the bowel since the absorption of both agents is negligible.

LOCAL IRRITATION IS REDUCED and control is instituted against spread of infective organisms and loss of body fluid.

PALATABLE creamy pink, fruit-flavored CREMOMYCIN is pleasant tasting, readily accepted by patients of all ages.

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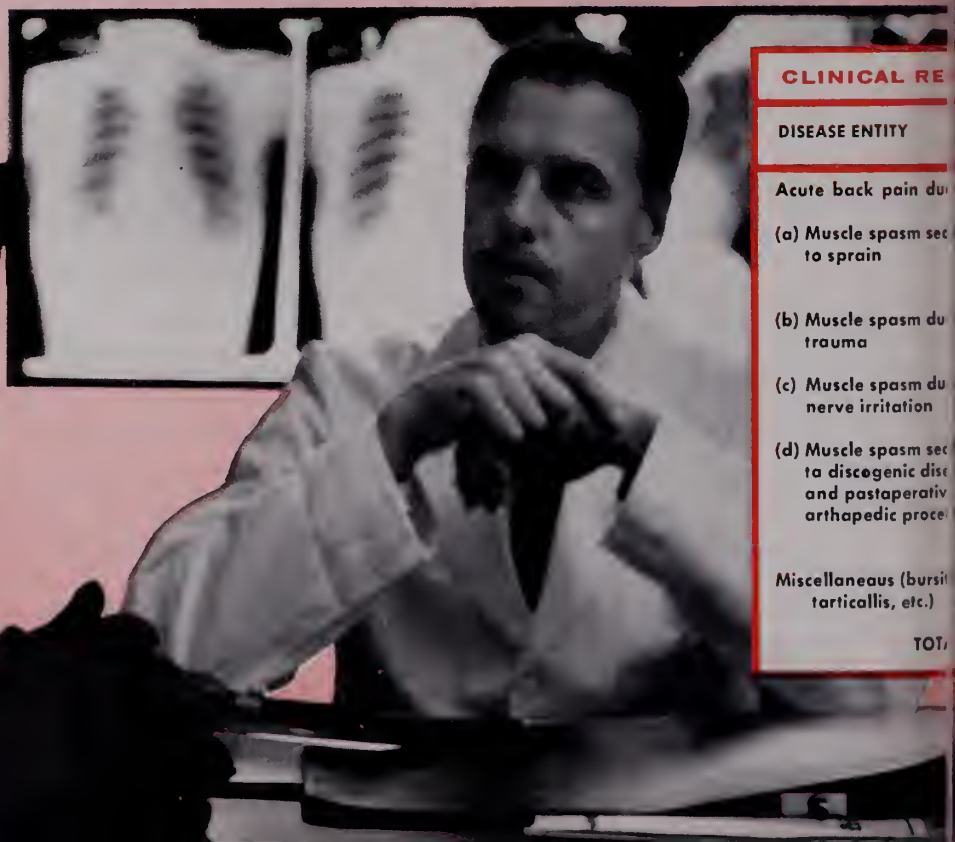
Significant **Robins** research discovery:

*A NEW SKELETAL
MUSCLE RELAXANT*

Ro

ROBAXIN — synthesized in the Robins Research Laboratories, and intensively studied for five years — introduces to the physician an entirely new agent for effective and well-tolerated skeletal muscle relaxation. ROBAXIN is an entirely new chemical formulation, with outstanding clinical properties:

- Highly potent and long acting.^{5,8}
- Relatively free of adverse side effects.^{1,2,3,4,6,7}
- Does not reduce normal muscle strength or reflex activity in ordinary dosage.⁷
- Beneficial in 94.4% of cases with acute back pain due to muscle spasm.^{1,3,4,6,7}



CLINICAL RE

DISEASE ENTITY

Acute back pain due to

(a) Muscle spasm secondary to sprain

(b) Muscle spasm due to trauma

(c) Muscle spasm due to nerve irritation

(d) Muscle spasm secondary to discogenic disease and postoperative orthopedic procedure

Miscellaneous (bursitis, tendinitis, etc.)

TOTAL



Robaxin®

(Methocarbamol Robins, U.S. Pat. No. 2770649)

Highly specific action

ROBAXIN is highly specific in its action on the internuncial neurons of the spinal cord — with inherently sustained repression of multisynaptic reflexes, but with no demonstrable effect on monosynaptic reflexes. It thus is useful in the control of skeletal muscle spasm, tremor and other manifestations of hyperactivity, as well as the pain incident to spasm, without impairing strength or normal neuromuscular function.

Beneficial in 94.4% of cases tested

When tested in 72 patients with acute back pain involving muscle spasm, ROBAXIN induced marked relief in 59, moderate relief in 6, and slight relief in 3 — or an over-all beneficial effect in 94.4%.^{1,3,4,6,7} No side effects occurred in 64 of the patients, and only slight side effects in 8. In studies of 129 patients, moderate or negligible side effects occurred in only 6.2%.^{1,2,3,4,6,7}

ROBAXIN IN ACUTE BACK PAIN^{1,3,4,6,7}

DURATION OF TREATMENT	DOSE PER DAY (divided)	RESPONSE				SIDE EFFECTS
		marked	mod.	slight	neg.	
-42 days	3-6 Gm.	17	1	0	0	Nausea, 16 Dizziness, 1 Slight nausea, 1
-42 days	2-6 Gm.	8	1	3	1	Nausea, 12 Nervousness, 1
-240 days	2.25-6 Gm.	4	1	0	0	Nausea, 5
-28 days	1.5-9 Gm.	24	3	0	3	Nausea, 25 Dizziness, 1 Lightheadedness, 2 Nausea, 2 *
-60 days	4-8 Gm.	6	0	0	0	None, 6
		59	6	3	4	* Relieved on reduction of dose

Indications — Acute back pain associated with: (a) muscle spasm secondary to sprain; (b) muscle spasm due to trauma; (c) muscle spasm due to nerve irritation; (d) muscle spasm secondary to discogenic disease and postoperative orthopedic procedures; and miscellaneous conditions, such as bursitis, fibrositis, torticollis, etc.

Dosage — Adults: Two tablets 4 times daily to 3 tablets every 4 hours. Total daily dosage: 4 to 9 Gm. in divided doses.

Precautions — There are no specific contraindications to Robaxin and untoward reactions are not to be anticipated. Minor side effects such as lightheadedness, dizziness, nausea may occur rarely in patients with unusual sensitivity to drugs, but disappear on reduction of dosage. When therapy is prolonged routine white blood cell counts should be made since some decrease was noted in 3 patients out of a group of 72 who had received the drug for periods of 30 days or longer.

Supply — Robaxin Tablets, 0.5 Gm., in bottles of 50.

A. H. ROBINS CO., INC., Richmond 20, Va.
Ethical Pharmaceuticals of Merit since 1878

References: 1. Carpenter, E. B.: Publication pending. 2. Carter, C. H.: Personal communication. 3. Forsyth, H. F.: Publication pending. 4. Freund, J.: Personal communication. 5. Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: American Pharm. Assn. 46:374, 1957. 6. Nachman, H. M.: Personal communication. 7. O'Doherty, D.: Publication pending. 8. Truitt, E. B., Jr., and Little, J. M.: J. Pharm. & Exper. Therap. 119:161, 1957.

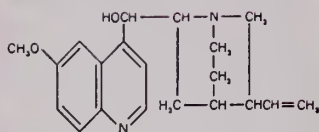
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EQUALS
 Progress in **CHEMOTHERAPEUTICS**

"It has a high degree of clinical safety. . . It is considered to be the preferred antimalarial drug for treatment of disorders of connective tissue, because of the low incidence of gastrointestinal distress as compared to that with chloroquine phosphate."¹

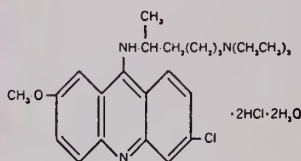
" . . . Plaquenil is decidedly less toxic and better tolerated by the average patient, even in high dosage, than is chloroquine."²

" . . . the least toxic of its class . . . "³

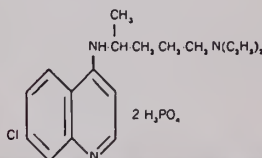
QUININE



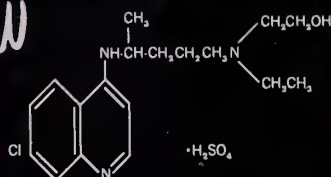
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ARALEN®
PHOSPHATE



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Remarkably
effective
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Plaquenil®

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RHEUMATOID ARTHRITIS

SIDE EFFECTS MARKEDLY REDUCED

DOSE: Initial — 400 to 600 mg. (2 or 3 tablets) Plaquenil sulfate daily.

Maintenance — 200 to 400 mg. (1 or 2 tablets) daily.

SUPPLIED: Tablets of 200 mg., bottles of 100.

Write for Booklet

Winthrop
LABORATORIES
NEW YORK 17, N. Y.

REFERENCES:

1. Scherbel, A. L., Schuchter, S. L., and Harrison, J. W. *Cleveland Clin. Quart.* 24:98, Apr., 1957.
 2. Editorial: *Bull. A. M. A. Dermatologists*, The Shock Section 5:25, Nov., 1956.

Atabrine (brand of quinacrine), Aralen (brand of



REMARKABLE EFFECTIVENESS PLUS A SAFETY RECORD UNMATCHED IN SYSTEMIC ANTIBIOTIC THERAPY TODAY

Actually, after almost six years of extensive use, there has not been a single report of a serious reaction to ERYTHROCIN. And, after all this time, the incidence of resistance to ERYTHROCIN has remained exceptionally low.

You'll find ERYTHROCIN is highly effective against the majority of coccal infections and may also be used to counteract complications from severe viral attacks. It comes in *Filmtabs* and in Oral Suspension.

Abbott

Compocillin-V[®]

**for those
penicillin-sensitive
organisms**



Indications

Against all penicillin-sensitive organisms. For prophylaxis and treatment of complications in viral conditions. And as a prophylaxis in rheumatic fever and in rheumatic heart disease.

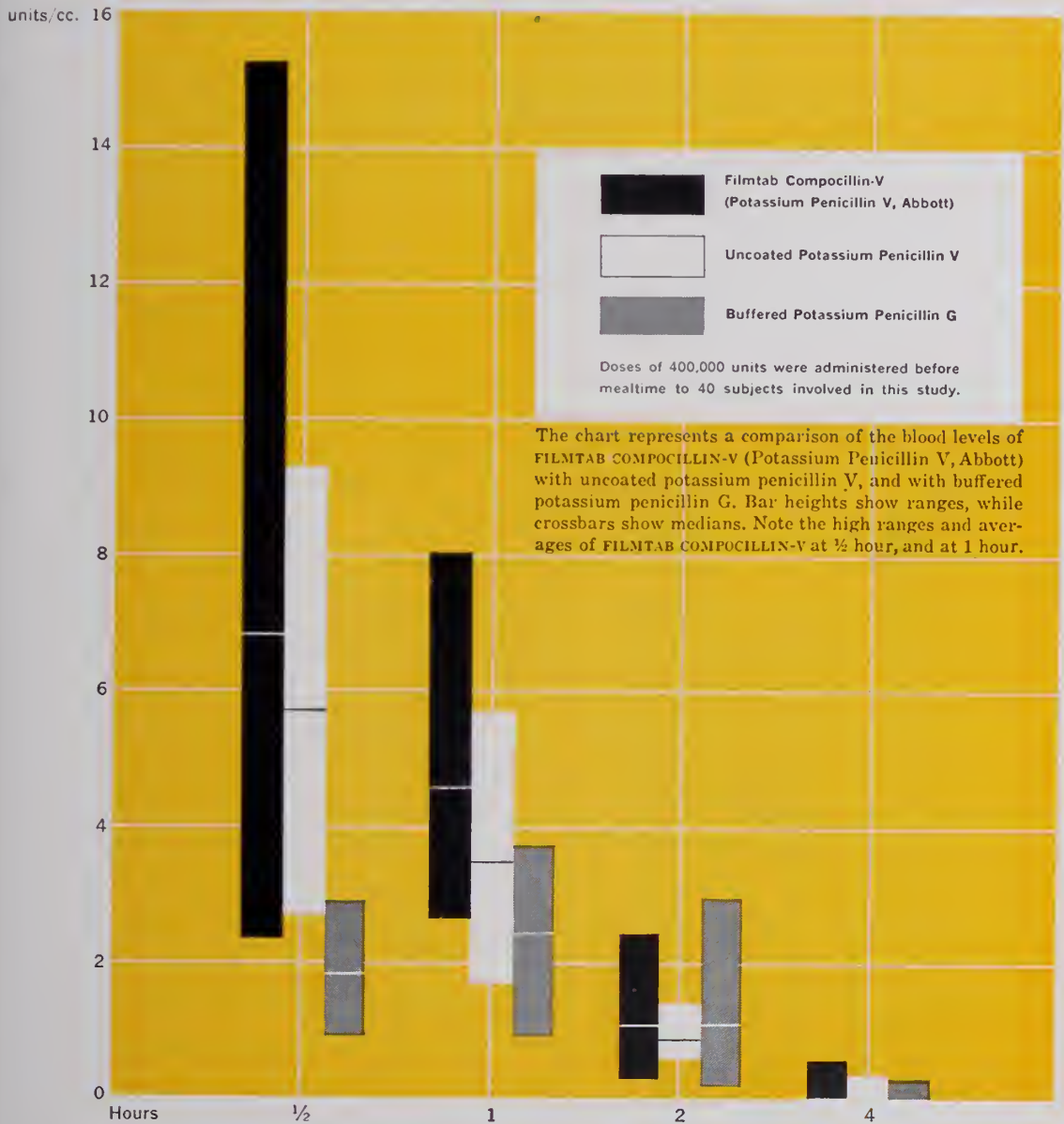
Dosage

Depending on the severity of the infection, 125 to 250 mg. (200,000 to 400,000 units) every four to six hours. For children, dosage is determined by age and weight.

Supplied

Filmtabs COMPOCILLIN-V (Potassium Penicillin V, Abbott) come in 125 mg. (200,000 units), bottles of 50; and in 250 mg. (400,000 units), bottles of 25. Oral Suspension COMPOCILLIN-V (Hydrabamine Penicillin V, Abbott), contains 180 mg. per 5-cc. teaspoonful, in 40-cc. and 80-cc. bottles.

THE HIGHER BLOOD LEVELS OF COMPOCILLIN-V
—IN EASY-TO-SWALLOW FILMTABS AND TASTY, ORAL SUSPENSION



Now, with *Filmtab* COMPOCILLIN-V, patients get (and within minutes) fast, high penicillin concentrations. Note the blood level chart.

COMPOCILLIN-V is indicated whenever penicillin therapy is desired. It comes in two highly-acceptable forms. *Filmtab* COMPOCILLIN-V offers two therapeutic dosages (125 and 250 mg.). Patients find *Filmtabs* tasteless, odorless and easy-to-swallow. For children, COMPOCILLIN-V comes in a tasty, banana-flavored suspension. It's ready-mixed — stays stable for at least 18 months.

Abbott

Spontin[®]

(Ristocetin, Abbott)

**and when
coccal infections
hospitalize
the patient**



Indications

SPONTIN is indicated for treating gram-positive bacterial infections. Clinical reports have indicated its effectiveness against a wide range of staphylococcal, streptococcal and pneumococcal infections. It can be considered a drug of choice for the immediate treatment of serious infections caused by organisms resistant to other antibiotics.

Dosage

Recommended dosage depends on the sensitivity of the microorganism and on the severity of the disease under treatment. For pneumococcal and streptococcal infections, a dosage of 25 mg./Kg. per day will usually be adequate. Majority of staphylococcal infections will be controlled by 25 to 50 mg./Kg. per day. However, in endocarditis due to relatively resistant strains or where vegetations or abscesses occur, dosages as high as 75 mg./Kg. per day may be used. It is recommended that the daily dosages be divided into two or three equal parts at eight- or twelve-hour intervals.

Supplied

SPONTIN is supplied as a sterile, lyophilized powder, in vials representing 500 mg. of ristocetin activity.

A LIFESAVING ANTIBIOTIC AFTER OTHER ANTIBIOTICS HAD FAILED



SPONTIN comes to the medical profession with a clinical history of dramatic results — cases where the patients were given little chance of survival.

During these careful, clinical investigations, lives were saved after weeks (and sometimes months) of antibiotic failures. These were the cases where the infecting organisms had become resistant to present-day therapy. And, just as important, were the good results found against a wide range of gram-positive coccal infections.

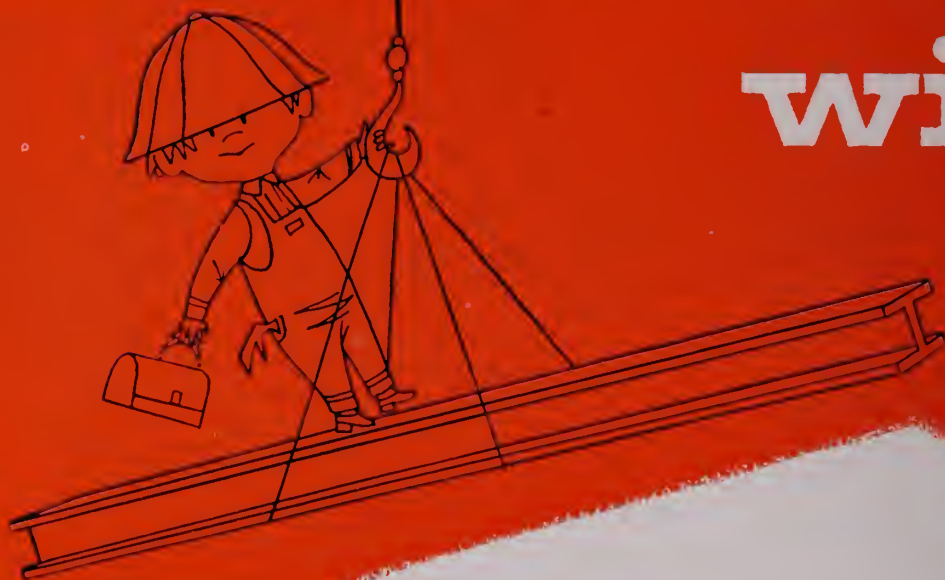
Essentially, SPONTIN is a drug for hospital use, for patients with potentially dangerous infections. In its present form, SPONTIN is administered intravenously using the drip technique. Dosage may be dissolved in 5% dextrose in water or in any isotonic or hypotonic saline solution. Some of the important therapeutic points of SPONTIN include:

- 1 successful short-term therapy for acute or subacute endocarditis
- 2 new antimicrobial activity — no natural resistance to SPONTIN was found in tests involving hundreds of coccal strains
- 3 antimicrobial action against which resistance is rare — and extremely difficult to induce
- 4 bactericidal action at effective therapeutic dosages.

SPONTIN is truly a lifesaving antibiotic. It could save the life of one of your patients — does your hospital have it stocked?

Abbott

new INCRE with



CORRECTS IRON DEFICIENCY AS IT STIMULATES APPETITE

- Offers appetite stimulating Vitamins B₁, B₆, B₁₂ and protein upgrading L-Lysine, fortified with a readily absorbed, well tolerated form of iron.
- Delicious cherry base designed to appeal to all patients.

PARTICULARLY FOR CHILDREN

Helps young appetites keep pace with the increased nutritional demands of childhood while supplying adequate amounts of essential iron.



ELIMIN IRON

LYSINE-VITAMINS

SYRUP

Provides the following percentages of Minimum Daily Requirements per teaspoonful:

	Child under 6	Child over 6	Adult
B ₁	2000%	1333%	1000%
Iron	400%	300%	300%

FORMULA

EACH TEASPOONFUL (5 cc.) CONTAINS

L-Lysine HCl	300 mg.
Ferric Pyrophosphate (Soluble)	250 mg.
Iron (as Ferric Pyrophosphate)	30 mg.
Vitamin B ₁₂ Crystalline	25 mcgm.
Thiamine Mononitrate (B ₁)	10 mg.
Pyridoxine HCl (B ₆)	5 mg.
Alcohol	0.75%

Average dosage is one teaspoonful daily. Available in bottles of 4 fl. oz.

*REG. U. S. PAT. OFF.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK



NOW...A NEW TREATMENT

'CARDILATE'*

for THE PROPHYLAXIS OF

ANGINA PECTORIS

'Cardilate' tablets  shaped for easy retention
in the buccal pouch

"... the degree of increase in exercise tolerance which sublingual erythrol tetranitrate permits, approximates that of nitroglycerin, amyl nitrite and octyl nitrite more closely than does any other of the approximately 100 preparations tested to date in this laboratory."

"Furthermore, the duration of this beneficial action is prolonged sufficiently to make this method of treatment of practical clinical value."

Riseman, J. E. F., Altman, G. E., and Koretsky, S.:
Nitroglycerin and Other Nitrites in the Treatment of
Angina Pectoris, *Circulation* (Jan.) 1958.

*'Cardilate' brand Erythrol Tetranitrate SUBLINGUAL TABLETS, 15 mg. scored



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for sound obesity management
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*With my anemia,
I'll never make it up
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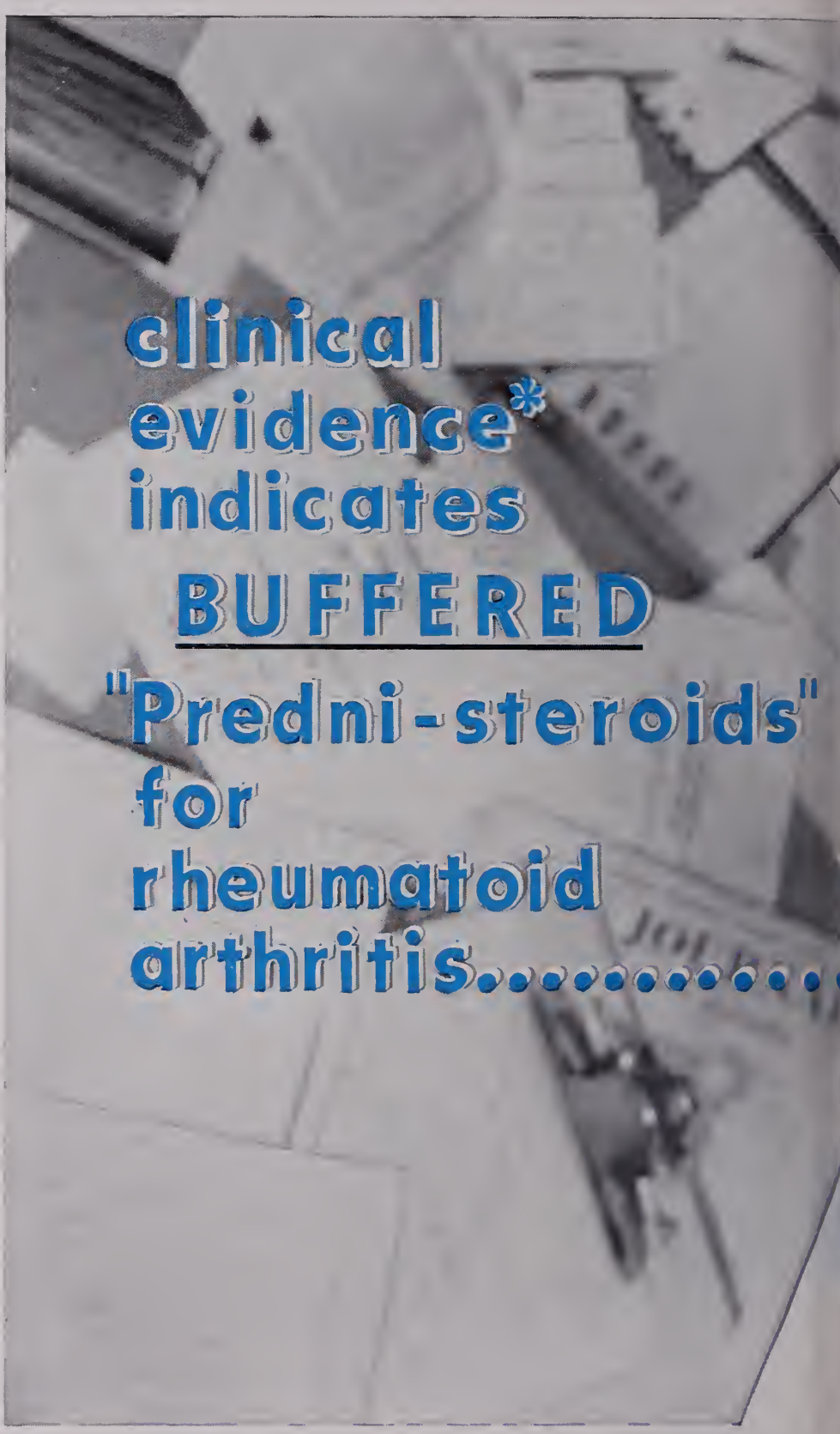
when more than a hematinic is indicated

(Prescription information on request)

... solve their problems with a nutrition product from



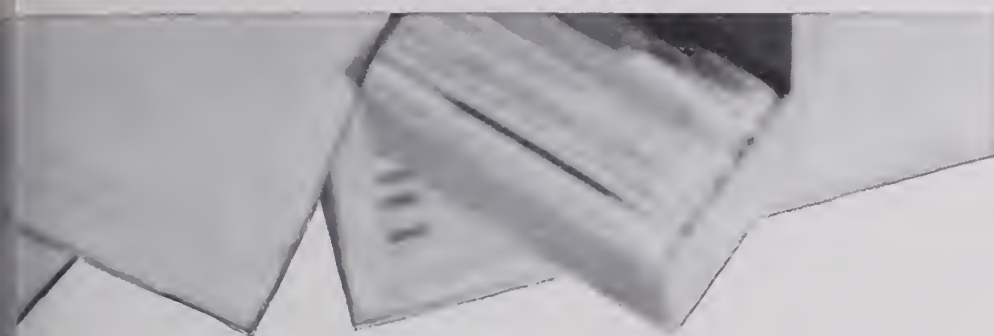
New York 17, New York
Division, Chas. Pfizer & Co., Inc.

An aerial, black-and-white photograph of a city, likely New York City, showing a grid of streets and several tall buildings. A large commercial airplane is visible on the ground in the lower right quadrant. The text is overlaid on the left side of the image.

**clinical
evidence*
indicates**

BUFFERED

**"Predni-steroids"
for
rheumatoid
arthritis.....**



Gastric distress accompanying "predni-steroid" therapy is a definite clinical problem — well documented in a growing body of literature.

view of the beneficial results observed when antacids and diets were used concomitantly with prednisone and prednisolone, we feel that these measures should be employed prophylactically to offset any gastrointestinal distress."—Dordick, J. R. *et al.*: *Am. J. Med.* 57:2049 (June 1954).

*"It is our growing conviction that all patients receiving oral steroids should take each dose after food or with adequate buffering with aluminum or magnesium hydroxide preparations."—Sigler, J. W. and Ensign, D. C.: *J. Kentucky State M. A.* 54:771 (Sept.) 1956.

**"The apparent high incidence of this serious [gastric] side effect in patients receiving prednisone or prednisolone suggests the advisability of routine co-administration of an aluminum hydroxide gel."—Bollet, A. J. and Bunim, J. J.: *J. A. M. A.* 158:459 (June 11) 1955.

One way to make sure that patients receive full benefits of "predni-steroid" therapy plus positive protection against gastric distress is by prescribing CO-DELTRA or CO-HYDELTRA.

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PREDNISONE BUFFERED

Whole compressed tablets

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provide all the benefits
of "Predni-steroid" therapy —
plus positive antacid protection
against gastric distress



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when anxiety and tension "erupts" in the G. I. tract...

IN GASTRIC ULCER



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Combines Meprobamate (400 mg.) the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of gastric ulcer—without fear of barbiturate loginess, hangover or habituation . . . *with PATHILON (25 mg.)* the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

Dosage: 1 tablet t.i.d. at mealtime. 2 tablets at bedtime.

Supplied: Bottles of 100, 1,000.



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The Best Tasting Aspirin you can prescribe.

The Flavor Remains Stable down to the last tablet.

25¢ Bottle of 48 tablets (1 1/4 grs. each).

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diagnosis: hypertension, moderate to severe

prescribed: **Rauprote***

(Rauwolfia Serpentina and Protoveratrine A & B Combined)

because immediate lowering of blood pressure is imperative

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Relief of symptoms is produced rapidly, blood pressure is lowered and tranquility ensues . . . with a minimum of side effects.

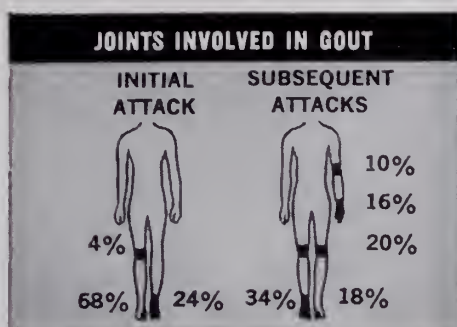
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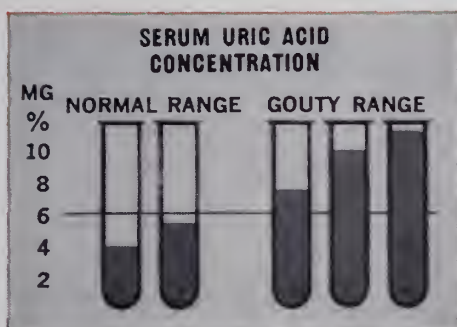
*Trade Mark



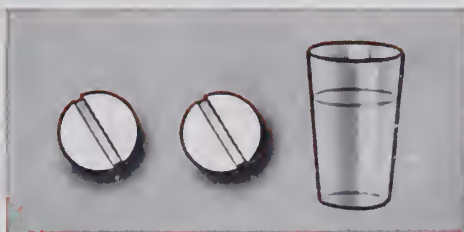
1. Recurrent joint pain followed by long periods of complete remission. (Percentages refer to incidence.)



2. Enlargement of bursae such as in this case involving the olecranon bursa.



3. Elevated serum uric acid levels.



4. Colchicine test: full dose (0.5 mg.) every 1 to 2 hours until pain is relieved or nausea, vomiting or diarrhea occur. The test requires usually 8 to 16 doses. Pain relief is highly indicative of gout.

FROM THESE FINDINGS...SUSPECT GOUT:

R_x **BENEMID**[®]

PROBENECID

A SPECIFIC FOR GOUT

Once findings point to gout, long-term management can be started with BENEMID. This effective uricosuric agent has these unique benefits:

- Urinary excretion of uric acid is approximately doubled.
- Serum uric acid levels are reduced.
- Uric acid deposits (tophi) in tissues are mobilized.
- Formation of new tophi can often be prevented.
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RECOMMENDED DOSAGE: 0.25 Gm. (½ tablet) twice daily for one week followed by 1 Gm. (2 tablets) daily in divided doses.

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**WHEN
YOU TREAT
INFECTIONS
IN PATIENTS
SUCH
AS THESE**

- debilitated
- elderly
- diabetics
- infants, especially prematures
- those on corticoids
- those who developed moniliasis on previous broad-spectrum therapy
- those on prolonged and/or high antibiotic dosage
- women—especially if pregnant or diabetic

the best broad-spectrum antibiotic to use is

MYSTECLIN-V

Squibb Tetracycline Phosphate Complex (Sumycin) and Nystatin (Mycostatin)

Sumycin plus Mycostatin

for practical purposes, Mysteclin-V is sodium-free

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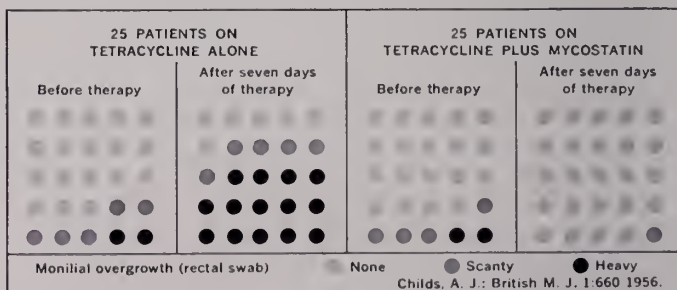
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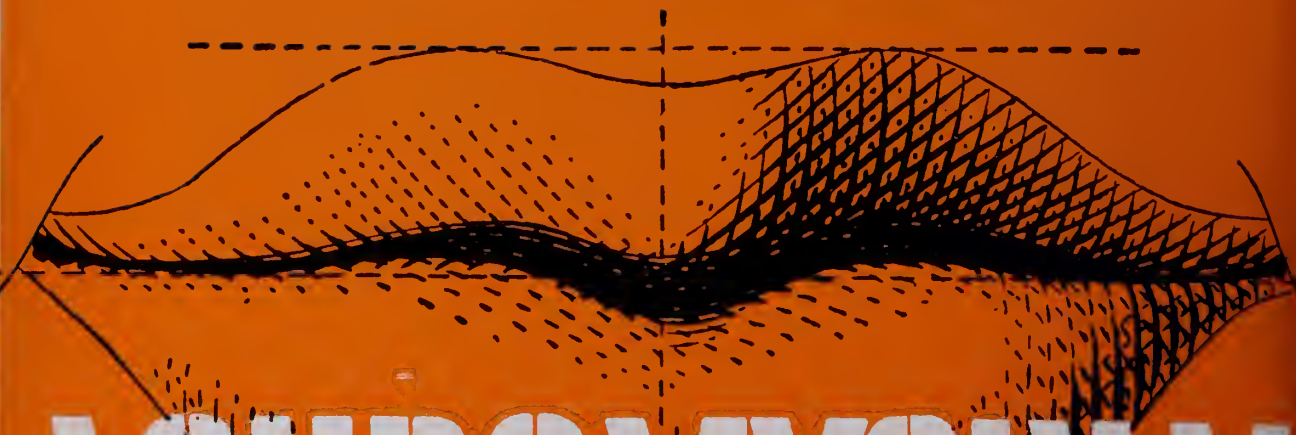
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PHYSICAL MEDICINE IN OCCLUSIVE ARTERIAL DISEASE

ABRAHAM VINOGRAD, M.D.*

Occlusive arterial disease is the most frequent single factor necessitating amputation of the lower extremity. Since the diagnosis in most cases is arteriosclerosis obliterans, the discussion will be limited to this entity, although a number of points made here are applicable to thromboangiitis obliterans (Buerger's disease) and some other conditions. Diabetic vascular disease is essentially arteriosclerosis obliterans. Arteriosclerosis obliterans is a disease of the male past middle age and as his life span becomes longer, the condition assumes greater importance.

Valuable diagnostic and therapeutic procedures used in occlusive arterial disease are in the field of physical medicine, and understanding of the rationale and effects of physical agents will be advantageous to the referring physician. It must be stressed that conservative and prophylactic measures described here have their greatest value in the early cases. When the condition is far advanced more heroic measures are in order. This paper is not intended as a complete coverage of the subject but rather as a guide based on physiologic principles.

PHYSIOLOGIC CONSIDERATIONS

Problems of indications and contraindications become simpler if we consider the physiology of peripheral circulation.

In evaluating the circulatory status of a limb the classical observations of Sir Thomas Lewis¹ are helpful. When blood flows rapidly the skin is pale pink and

warm. "The slower the blood flows through the skin the more oxygen it gives up, causing cyanosis." Cold cyanotic skin denotes very slow or absent blood supply. Cold deeply red skin ("cold rubor") occurs when minute vessels are damaged by severe prolonged ischemia, resulting in permanent dilatation.

Arterial channels reaching the extremity branch to supply the muscles and the skin. Considerable *differences* exist between the *cutaneous and muscular arterial trees* with respect to results of occlusion, vasomotor innervation, influence of physical agents, effects of sympathectomy, responses to drugs, etc. Keeping these differences in mind gives us the key to understanding the major problems.

In occlusive arterial disease the vessel may be partially or completely closed by arteriosclerotic thrombosis from within, by vasoconstriction or vasospasm from without, or by a combination of both. Ischemia at the point of supply is the result. Interruption of blood flow to the skin results in *ulceration and gangrene* while interference with supply to the muscle causes *intermittent claudication*. The claudication pain on walking, resulting from muscular ischemia, is analogous to the angina of effort. Although both the skin and the muscles are often simultaneously affected, differentiation should be attempted for clarification of our therapeutic objectives. Likewise, an effort should be made to find out whether we are dealing with organic obstruction by a thrombus or with vasoconstriction. If both elements are present we should try to

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estimate which of the two predominates, before planning our treatment. Segmental occlusion by a thrombus may require vascular surgery while other measures are used for the constrictive phenomena.

Vasomotor Innervation. The cutaneous arterial branches are well provided with sympathetic vasoconstrictor nerve fibers, maintaining the vascular tone and controlling their lumen. If the arterioles of the skeletal muscle are also supplied with sympathetic constrictor fibers (as is claimed by some) their number, according to Stillwell,² is not significant. On the other hand, the muscular arterioles do contain some sympathetic vasodilator fibers. The net result of sympathetic overactivity is cutaneous vasoconstriction. Sympathetic stimulation, as well as increased sympathetic tone, common in certain individuals, has one other important effect: stimulation of nerve fibers supplying the sweat glands (sympathetic sudomotor fibers).

The Role of Perspiration. The extent of sweating in peripheral vascular disease is of utmost practical importance: 1. Evaporation of sweat produces local cooling of the skin resulting in vasoconstriction; 2. Excessive moisture of the skin favors maceration and fungus infection since sweat is an excellent culture medium for fungi. Secondary infection may supervene and a disastrous chain of events (fissure — cellulitis — gangrene) is easily initiated.

In addition to the neural control, the walls of the cutaneous and muscular vessels are subject to direct action of metabolites. Dilatation of the muscular tree, incidental to production of lactic acid during muscular exercise, is an example.

Tobacco is a vasoconstrictor and smoking should be avoided in occlusive arterial disease. Additional deleterious effect of tobacco in thromboangiitis obliterans is definite but so far not fully explained.

EFFECTS OF HEAT

Heat applied locally causes hyperemia. At the same time it raises tissue metabolism in the heated area. When circulation

is inadequate for removal of accumulated metabolites tissue damage results. A contributing factor may be reduced pain and temperature sensation due to an ischemic neuropathy and a burn may be produced. Reduced blood flow slows the dissipation of heat applied locally and this, too, increases the damage. A history of a hot foot bath preceding the onset of gangrene is rather common when the patient is admitted to the hospital. The hot phase of the contrast bath makes it a contraindicated procedure for an ischemic limb. All baths, including whirlpool, should be of room temperature, and excessive bathing should be avoided to prevent maceration.

Reflex Heating. Prolonged application of heat to a part of the body provokes generalized cutaneous vasodilatation. In this manner the extra heat introduced is eliminated by radiation into the environment from the hyperemic skin. This thermoregulatory reflex brings about an inhibition of sympathetic vasoconstrictor fibers, so to speak, a "physiologic sympathectomy". This reflex heating can be used to advantage, both in diagnosis and in treatment. When we want to know whether a surgical sympathectomy should be considered reflex heating can provide us with valuable information. In *Landis-Gibbon's* test the upper extremities are immersed in hot water. The temperature of the feet is taken with a thermocouple before and after the test. Significant rise in temperature demonstrates the ability of skin vessels to dilate and the absence of extensive intravascular organic obstruction so that sufficient blood can reach the skin. Such a response would be in favor of doing a sympathectomy. Confirmatory information is gained from sympathetic blocks (posterior tibial or paravertebral) or by a trial of an orally administered sympathetic blocking agent, such as Dibenzylamine ("medical sympathectomy"). Reflex heating is occasionally used in a therapeutic attempt at vasodilatation. This is done by applying diathermy to the abdomen or to the back. It may be effective when pedal ischemia is due, in part at least, to cutaneous vasoconstriction or vasospasm.

SYMPATHECTOMY

Since interruption of sympathetic stimuli can improve the blood flow through the skin, sympathectomy is often helpful in the prevention and treatment of ulcerative lesions. Warm, dry skin is produced. If we deal, however, with a severe organic obstruction, or if the cutaneous vessels show no dilatation potential, sympathectomy will be useless.

As stated earlier the arterioles of the skeletal muscle are not equipped with any significant number of sympathetic vasoconstrictor fibers. Consequently, we cannot expect the sympathectomy to produce vasodilatation in the patient's calf muscles. This operation does not, as a rule, relieve intermittent claudication; in fact, it often aggravates it. The following explanation is given: If a limited blood supply of an arteriosclerotic leg is drained by the dilated skin vessels one would expect the muscular ischemia to increase. We can conclude that for relief of claudication, in the absence of skin lesions, sympathectomy is not indicated. Lumbar sympathectomy is a major procedure and should not be approached lightly in older individuals. In younger men bilateral sympathectomy causes sexual impotence.

Electrical Skin Resistance. Since the sweat glands receive their impulses via the sympathetic sudomotor fibers presence of moist skin is an indication of intact sympathetic innervation. Conversely, a sympathectomized segment of skin is dry and this phenomenon is used in judging the effectiveness of sympathectomy. Small amounts of sweat cannot be always easily detected by palpation and a more accurate objective method is desirable. Sweat, being a solution of electrolytes, facilitates conduction of electric current applied to the body, offering "low resistance" to the passage of current. On the other hand, dry (sympathectomized) skin has high electrical resistance. The ohmmeter, an apparatus for measuring resistance, is used to evaluate effectiveness of sympathectomies. The test is done pre- and post-operatively, as well as in testing the success of paravertebral blocks.

EFFECTS OF COLD

These are more or less the opposite of those produced by heat. Application of cold locally lowers tissue metabolism and enables it to withstand curtailed blood supply for longer periods of time. Among other effects of cold is direct local vasoconstriction and reduction of absorption which has the advantage of slowing the entry of noxious substances into general circulation from a gangrenous limb. This, together with the local anesthetic action, makes *refrigeration* a useful therapeutic adjunct when amputation of a gangrenous extremity must be delayed for medical reasons.

However, application of cold, can cause reflex vasoconstriction in distant areas of skin as a part of thermoregulation, thereby reducing heat loss. Vasospasm, too, may be produced by application of cold. The cold phase of a contrast bath may trigger reflex vascular narrowing in the other leg which usually is also involved in the arteriosclerotic process. This shows that contrast baths should have no place in the management of ischemic extremities. The patient's legs, in general, should be given protection against cold. Warm clothing should be worn during the winter.

RESPONSES TO CERTAIN DRUGS

The aim is vasodilatation, and here again we select the drug depending on whether it is the cutaneous or the muscular blood flow we try to improve.

In *Dibenzylamine*, according to Abramson³ and others, we have an adrenergic blocking agent inhibiting the transmission of sympathetic impulses to the vascular wall. In a patient with skin lesions it may be useful as a therapeutic trial and also to see whether the patient would benefit from sympathectomy. It is given orally in doses of 10-20 mg. three times a day. Side effects include nasal stuffiness and interference with sex function (ejaculation). Dibenzylamine is more effective than Priscoline in oral medication.

For specific dilatation of arteries of the skeletal muscle *Arldin*, an adrenergic compound, is used. Given orally in doses of

6 mg. three times a day, it is used for relief of intermittent claudication. Increased walking tolerance occurs in about half the cases treated. Arlidin is contraindicated in patients with coronary thrombosis.

To concentrate the effect of a drug on the walls of the peripheral arteries and to avoid systemic reactions *intra-arterial* route is used. Thus Priscoline and other drugs have been found effective in dilating the cutaneous tree when injected into the femoral artery. More recently 27 MI*, an iodide compound, has been used intra-arterially. Rose and Ebel¹ found that relief of rest pain occurred in 92% of cases and that healing of ulcerations "appeared to be expedited by this form of treatment". 27 MI caused less local reaction and fibrosis at the site of the injection and a greater increase in the skin blood flow as compared with Priscoline. During the two years with the peripheral vascular disease clinic of the Bronx VA Hospital, I administered a large number of these injections and was impressed with the rapid onset of pronounced hyperemia. Although demonstrable vasodilatation lasts less than one hour, such daily opening of arterial channels is worthwhile.

HISTAMINE IONTOPHORESIS

Another route of depositing the medication where it is needed and lessening the danger of systemic reactions is by ion transfer. In the technic recommended by Harpuder,⁵ histamine ointment is applied to the skin either proximal to or around the ulceration. Galvanic current is used and positive histamine ions, while being repelled from the positive electrode, are driven into the skin. Dilatation occurs as a result of a direct action on the vascular wall. Both iontophoresis and intra-arterial medication may be used after sympathectomy if an attempt at additional cutaneous dilatation is desirable.

EFFECTS OF EXERCISE

That active exercise is a potent means of increasing muscular blood flow was con-

clusively demonstrated by Wisham, Abramson and Ebel.⁶ The most effective type of exercise is where the muscles are offered resistance. On the other hand, the time-honored Buerger's postural exercises must be considered useless, as stated by Allen, Barker and Hines.⁷ "Active-resistive" exercise is also credited with stimulating the development of collateral circulation in response to increased demand for blood. Standing up on toes is good exercise. Walking to the point of incipient claudication pain is beneficial. Following brief rest periods, walking should be continued. Severe pain must be avoided since it may provoke vasospasm. Harpuder⁸ encourages his patients to walk and to go to work "except in cases of gangrene, larger ulceration or infection". The popularly held belief that walking shortens the life of an arteriosclerotic leg does not hold true, provided no significant skin lesions are present.

If the patient must remain in bed for a longer period of time, exercises should be administered in bed. Muscle atrophy and contractures must be prevented. Patients with painful lesions of the feet have a tendency to hold their legs in a flexed attitude. The result of this "withdrawal reflex" is a flexion contracture of the knee which is seen rather frequently in this condition unless prevented by exercises.

Rehabilitation aspects of borderline indications for amputation may be a decisive factor. A younger man remaining bedridden for many months either because of severe claudication or a hopeless ulceration should be given the benefit of earlier amputation so that he may sooner return to a productive occupation.

SUMMARY AND CONCLUSIONS

1. Physical medicine contributes valuable procedures for the diagnosis and treatment of occlusive arterial disease.
2. Vasodilatation is a major therapeutic objective. Various dilator agents, physical and medicinal, are reviewed. Some of the newer vasodilator drugs, oral and intra-arterial, are briefly discussed.
3. The subject is presented against the background of physiology. Distinction be-

* While not commercially available the drug was supplied by Campbell Pharmaceuticals for research purposes.

tween the cutaneous and muscular circulation helps to clarify many problems. The part played by perspiration is discussed. Intermittent claudication is not an indication for sympathectomy.

4. Active exercise is a potent physiologic dilator of muscular arteries. Certain time-honored beliefs and procedures must be discarded. Walking does not shorten the life of the leg unless skin lesions are present. Buerger's exercises are of no value.

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COMMON APPLICATIONS OF MENTAL HYGIENE

PRINCIPLES

D. A. ROVITO, M.D.*

With increasing knowledge in the psychopathology of emotional disorders, there is a parallel interest in utilizing the newer insights, and the bulk of clinical experience in the prevention of psychiatric disorders. This interest probably dates back to primitive man who found the cause of mental illness in the sun, moon, etc., and proceeded towards the deification of inanimate and animate objects. The subsequent vicissitudes of the concept of mental illness, through the middle ages with its demonology and witchcraft, the closer ties between psychiatry and medical sciences, the discoveries of Freud with emphasis on a dynamic, biological psychology, are all now a matter of record.

In this country, the names of Benjamin Rush, Dorothea Dix, George Miller Beard, Clifford Beers, and Adolph Meyers are identified as the main springs of a revival of interest which led to the foundation of a National Committee for Mental Hygiene in 1910. The growth of psychological sciences has been phenomenal in the last 30 years. Its ramification is manifold, reaching in all areas of endeavor, with an outgrowth of subspecialties requiring highly specialized skills such as psychosomatic medicine, child psychiatry, criminality, and group psychotherapy.

In a consideration of the problem of prevention in psychiatry, certain clarifications are necessary. Specific etiological factors, similar to the frame of reference accepted in medicine, are generally not known. It should be recognized that emotional disorders are not diseases, but rather disturbances of personality, reactions to inner and outer conflicts, present or past. In this respect the early formative years of life become of paramount importance. A child

senses anxiety, love, warmth, acceptance, verbal or non-verbal or its opposite, in the parents. Another clarification is the concept of latency. A syphilitic chancre will heal with or without treatment but the diseases may reappear 15 or 20 years later as central nervous system lues. Similarly, emotional disorders, while rooted in childhood, may manifest themselves at any time in life, such as upheavals at puberty, maladjustments in adulthood, and personality changes in the senium.

Every psychiatrist in the course of his practice is confronted with the question: "If my troubles go back to childhood, why do I feel upset now?" The explanation is not always apparent or simple. We are certain of the importance of unfavorable constellations without entering into a polemic of the constitutional versus the environmental. A mild obsessive compulsive improved rather dramatically in his overt symptomatology. He had been recently appointed constable. When seen again about 3 years later, he suffered a relapse following an arrest he made on an individual who had to be forcefully subdued. This man was a rigid, perfectionistic personality, who upon becoming an authority figure, achieved a measure of balance, but when confronted with an act of violence, guilt feelings became reactivated with re-emergence of overt symptoms.

It is in the field of child psychiatry that prevention plays a major role. No attempt will be made here to cover this subject. Suffice it to say schematically that from the early years to adolescence, a process of growth, physical and psychological, unfolds itself. In this process there are needs to be satisfied; food, warmth, organismal spontaneous activity, but also the demands of cultural institutions to be met. In this

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struggle the personality molds itself, fighting and fearing, overcoming obstacles, erecting defenses, compromising in the constant ebb and flow of the vicissitudes of life. From a state of helplessness, which incidentally is longest amongst all mammals, he may reach a high state of independence, mastery of his environment, maturity. One cannot but marvel at man's remarkable ability to adaptation, providing however that the process of adaptation be gradual. This principle of the potentialities of the individual for change should always guide us in our efforts to treat psychiatric disorders in fostering mental health and in the education of children, keeping mainly in mind the necessity for gradual change.

Specifically, in daily clinical experience, many valuable conclusions have been drawn after thorough and longitudinal evaluation of patterns of behavior. In infancy, the problem of weaning is outstanding. This should be gradual. If too abrupt, there will be a tendency later on in life to develop a feeling of being cheated. If too late, a tendency towards dependency with possible branching into one of many clinical syndromes: alcoholism, obesity, peptic ulcer, bronchial asthma, etc. The underlying theme is "the world owes me a living and a loving". Later, bowel training requires tactful handling. The child wants to touch, smear, but slowly he must conform to societal demands. If he does not conform, it is preferable not to make an issue. Laxatives and enemas should be avoided as much as possible. Disturbances in this area subsequently may lead to pathological degrees of orderliness, punctuality, and aggressiveness. The foundations are laid for a future obsessive compulsive personality and a potential involution psychosis.

At puberty one is confronted with an upheaval both physiological and social. There are normal transitory feelings of isolation, insecurity, inadequacy, and emotional instability in the form of easy crying and laughing. The genital urge is more powerful, yet culture and religion impose restrictions. Much tact will be needed in reaching a balance through supervision and educa-

tion. While it would be ideal if the wisdom of the elderly could be absorbed by youth, this rarely happens, and we must recognize the right of the individual to learn from one's own experience. To be avoided are strong admonishments and fearful overprotectiveness. Gregariousness, healthy identifications, opportunities for advancements and achievements at school and in sports should be encouraged. In the adult, prevention presupposes recognition of the problem with psychogenic potentialities. An acquaintance with the ordinary workings of the mind is indispensable as are the newer acquisitions in the field of psychosomatic medicine.

Fundamental in treatment and prevention is a healthy doctor-patient relationship, particularly the ability to empathize. This has been defined as the capacity to project one's feelings to others and works both ways. Mutual understanding can pave the way for a sound relationship and can soften resistance, lack of co-operation, and defiances.

Some of the more common problems met in daily practice will be briefly discussed. The question of iatrogenic phobias has probably been overstressed in the literature. A low or high blood pressure reading to the patient can become the focus of all his attention and trigger off a change in pattern of behavior, a manipulation of environment to achieve mastery, with secondary gain of money or sympathy. I'm inclined to believe that such changes would have developed sooner or later, and that the medical statement was seized upon only incidentally. It could have been a sentence from a book or sermon; a scene from a moving-picture or television.

In the field of surgery, it is advisable to exercise some psychiatric prophylaxis, discussing the chances of success, the amount of pain, the total financial expenses and allaying fears. Alertness is necessary in those patients who beg for operation. The need is probably more psychological than medical. An operation may release an acute endogenous depression with suicide. The depression may have been masked only by a subjective symptom of fatigue, or constipation, or a fixation on some body organ.

Plastic surgery generally is not noxious. The cosmetic repairs in women and children gratify a nucleus of narcissism that is present in everyone. A diagnosis of malignancy can have disastrous repercussion. When little time is available to size up the strength of a personality, and this can be very deceptive even for those better trained, a talk with the nearest responsible relative can at times guide us in our decision to inform or not inform the patient.

Occasionally one is confronted with the phenomenon of denial of illness, for example in cases of coronary thrombosis. Restriction of physical activities, absolute rest in bed, etc., are prescribed, yet the patient behaves very lax, and nothing from his manner and attitude transpires which would suggest that he realizes the seriousness and gravity of his illness. This is a very touchy situation. I wish to convey here simply the thought that the anxiety generated from the emotional acceptance of illness can be more devastating on a heart than physical activity.

Another medical responsibility is that of preventing suicide. There are no absolute criteria for determining suicidal drives. It can be postulated however that danger exists if (1) a lot of self-depreciation is present with little or no psycho-motor retardation; (2) fear of losing his mind. Contrary to old medical beliefs, such fears usually indicate a disintegrating mental process; (3) fear of punishment more so in the course of surgical operation in old people; (4) family history of suicide; (5) recent loss of person on whom patient depended such as wife, brother, or friend. While a depressed patient will commit sui-

cide after careful planning, the hysterical will do so on an impulse of the moment.

A great challenge faces the medical profession in the field of geriatrics. Those of us who dedicate most of our time in hospitals cannot but witness the increase in the percentage of elderly persons in a hospital population. They have become a burden to their families and the trend today is to shift this burden from the family to the community. They are the unwanted and the unloved. Apart from whatever measure of improvement can be derived by correction of certain physical disabilities, prostatism, cataracts, etc., it is essential that their sense of belonging to a social group be restored. Inactivity is demoralizing. At the VA Hospital in Wilmington a few patients with chronic brain syndrome due to arteriosclerosis are admitted to the psychiatric ward either directly or as transfer from a medical ward. It is remarkable how a program of diversional, occupational, and group psychotherapy activities, coupled with personalized interest, will restore a sense of self-confidence and a degree of happiness. We believe this can be attributed to a common denominator: socialization.

In summarizing, the concepts of personality, latency, adaptation have been outlined. Because of the nature of psychiatric disorders, prevention is more effective in childhood. In adults there are limitations which, if properly assessed, can reduce future disappointments for the physician and patient. A few common medical situations are presented, which, it is hoped, will stimulate attention in an area beyond the overt clinical symptomatology.

THE RORSCHACH EXAMINATION IN DIAGNOSIS AND TREATMENT

RICHARD H. PRICE, M.D.*

Although most medical men are familiar with the Rorschach examination (ink blot test), few are cognizant of the true value of the test in diagnosis and treatment.

The test was devised more than forty years ago by a physician, but its administration was taken over largely by clinical psychologists, who have published more than three hundred books and myriads of articles concerning it—mostly in non-medical literature.

The modern thought in the practice of medicine is that we should treat patients—not symptoms; personalities—not “cases”. The Rorschach test affords a rapid means for personality evaluation.

In the 1957 edition of *Psychosomatic Medicine* by Weiss and English, the following statements are made under the heading *Rorschach Test*:

“The name Rorschach is derived from the man who originated the test and pioneered in its development. Usually it requires about an hour to administer, and even a longer time to interpret. The test consists of ten bilaterally symmetrical, meaningless ink blots on cards which are presented one at a time to the patient who is asked to tell what they represent to him or what he sees in them. Half of the cards are black and white and half of them have color. The responses and comments when evaluated offer a remarkably accurate means of gaining information about the patient’s reactions in terms of intellectual capacity, emotional control, quantity and quality of intellectual drive, special topics of conflict, and the manner of approach to various problems. . . . When one finds

that a considerable amount of instinctual energy is being inhibited in the presence of psychosomatic disease we should suspect that this energy is playing a part in symptom formation. Hence, the Rorschach test may be useful not only to the psychologist and psychiatrist but also to the physician who is interested to know how misdirected emotional energies may disturb the workings of the body. . . .

“Kemple, working with patients in the general medical wards of the Presbyterian Hospital of New York, found that Rorschach study of hospital patients with rheumatic disease, hypertensive cardiovascular disease, coronary occlusion and fracture showed distinctive personalities associated with each illness syndrome.”¹

Many thousands of Americans learned of the Rorschach by means of a motion picture, *Dark Mirror*. In the picture, Olivia DeHavilland took a dual role, portraying twins. A Rorschach examination revealed which of the twins had committed murder.

While never having employed the ink blot test to discover murder, I did successfully utilize it to free a man from a false murder charge. This person shot and killed his wife—then immediately bundled his four small children into a car—and drove to a distant state. This event, together with the fact that he had stolen the gun from his wife’s parents’ home a month before the incident, indicated enough guilt for an indictment of first degree murder. Yet the killing was purely accidental: he had been cleaning the gun when his wife came over to caress him, and the contact discharged the weapon. At the trial the prosecution tried to prevent me from being a witness for the defense, saying that there had been no intimation of an

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insanity plea. However, when I stated that I had found the prisoner sane, I was allowed to testify. My statement was simply that a Rorschach examination definitely indicated the man's personality to be such that his life-long pattern was one of fear of authoritative figures (such as parents and police) and that his impulsive running away from the death scene was due to this, *not* to guilt. He was freed of both first and second degree murder charges.

My personal interest in Rorschach work was aroused in 1946 while working at the Veterans Administration Mental Hygiene Clinic in Washington, D. C. There I found that the Chief Clinical Psychologist, Dr. Alfred Cornsweet, could tell me much more about a person from one Rorschach examination than I was able to learn from interviewing the patient for weeks and months. I discovered that this time-saving device in learning to understand people was reported in the Rorschach publication *Psychodiagnostics*. This book was published by Emil Oberholzer, M. D. (who, like Dr. Rorschach, was a Swiss psychoanalyst). Oberholzer gave the test to a patient and sent the responses to Rorschach for interpretation. Oberholzer reported: "I have nothing to add to the 'blind' diagnosis made by Rorschach, and I could not have given a better characterization of the patient than is supplied by the psychogram, though I had him under analysis for months."²

Many child guidance centers, mental hygiene clinics, and hospitals depend a great deal upon the Rorschach examination as a valuable adjunct in diagnosis, supplementing it with other tests as indicated.

The Rorschach test also is valuable in vocational counseling. An example of this is the case of a young man who had studied architecture for two years in a leading university. He could not understand his poor progress. The test showed me that he had an unconscious aversion to minute details and that he had an almost total lack of

originality. He changed his college work and became successful in another field. If the Rorschach had been administered *before* he began his college work, he might well have been spared two years of frustration.

Concerning treatment, although any physician can treat a person better if he understands the patient's personality, the more specific use of the Rorschach technique is in psycho-therapy. For example, a patient when first examined described one of the blots as follows: "It looks like a man or animal, impaled upon a pole." After two years' treatment, he responded to the same blot: "It is a man sitting up with arms thrust out as if to make people laugh." It required analytic probing to determine whether the patient, now able to sit up and take notice, wanted to make others laugh, or was afraid they might laugh at him. It was found that elements of each were involved.

The test is very valuable in child guidance. It is my custom to give the Rorschach to children from two years upwards, as well as to their parents, brothers, and sisters. Thus, the personality characteristics of the whole family become known. It is usually in interpersonal relationships at home that the basic causes of difficulty arise. Insight can be afforded both to parents and children as a result of information gained from the Rorschach examinations.

While it is true that most medical men do not have time to study the Rorschach technique, they may have the test administered to their patients by competent experts. The interpretations of the examinations would afford the physicians better understanding of personalities under their care.

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COMPRESSION OF THE AORTA AND URETERS BY A RETROPERITONEAL INFLAMMATORY MASS

CASE REPORT

JOHN H. FURLONG, JR., M.D.*

and

HAROLD V. CONNERTY, M.D.**

Among the causes of ureteral obstruction, that of compression by a chronic retroperitoneal inflammatory mass is one of the least common. The condition was first reported by Ormond in 1948, and only 31 cases*** have been discovered in a review of the literature up to 1958. The reporting of a single additional case seems worth while particularly since it appears to be the first one in which the inflammatory mass compressed the abdominal aorta in addition to obstructing both ureters.

CASE REPORT

A 35 year old colored man was admitted to the medical service in February 1954 with the complaint of having noted totally bloody urine for one day. He had been working regularly as a laborer and there had been no previous urinary or general complaints. Ten years previously he developed sudden pain and swelling of the left leg. This was treated as being due to thrombophlebitis; the symptoms disappeared in a few days and no subsequent trouble occurred. Also 10 years previously a primary penile luetic lesion was found and treated with injections of unknown type for one year. Nine years later a series of 15 daily injections of penicillin was given and a spinal fluid examination was normal.

The only abnormalities noted on physical examination were a blood pressure of

170/110, slight A-V nicking of the retinal vessels, and a grade one apical systolic murmur. Among the laboratory studies should be mentioned a negative blood serologic test for syphilis, hemoglobin of 6.6 grams, and no evidence of red blood cell sickling. The urine had a specific gravity of 1.010 with 4 plus albumin and sediment loaded with RBC and WBC. After a few days, the urine contained only a trace of albumin and 4 to 8 WBC HPF. Several BUN determinations ranged between 62 and 68 mgms.%. Serum creatinine was 10 mgms.% and no P.S.P. dye was excreted in two hours. Three urine cultures showed no growth. The tuberculin skin test was positive.

The hematuria ceased after a day and cystoscopic examination then did not reveal the source of bleeding. Ureteral catheters were passed easily and retrograde pyelograms showed marked bilateral hydronephrosis with at least the upper one half of the ureters also dilated. (Figure #1).

Lumbar aortography was performed to help determine the status of the renal blood supply. The films showed normal renal arteries with a generalized diminution in fine renal vascular markings. There was an abrupt narrowing of the aorta beginning just below the origin of the renal arteries and extending into the iliac arteries. (Figure #2).

Re-examination of the patient at this time revealed diminished femoral pulses and leg blood pressures averaging 123/110 as compared with arm pressures of 180/110. The cardiology consultant, Dr. J. Richard

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*** One of the seven cases reported by Raper in 1956 was omitted since no mention was made of surgical exploration or biopsy.



Figure 1

"Initial retrograde pyelogram showing bilateral hydronephrosis with dilated upper ureters."

Durham, noted a systolic bruit anteriorly and posteriorly over the abdominal aorta. He felt that the findings might be due to a congenital coarctation of the abdominal aorta or to a Leriche syndrome.

Despite the fact that the cause of the ureteral obstruction was still unknown, it was felt necessary to do bilateral nephrostomies to prevent further renal deterioration. Right nephrostomy was done in March, 1954 and in three weeks the BUN had fallen to 28 mgms.% with 32% P.S.P. excretion from the right kidney in 2 hours. Left nephrostomy was then performed. At that procedure the aortic pulsations were palpated at the level of the renal artery, and found to be normal. Just below this, the aorta narrowed abruptly, felt quite firm and did not pulsate. There was a marked systolic thrill noted in this area. After two months of nephrostomy drainage, the BUN had fallen to 15 mgms.% and two hour P.S.P. excretion was 35% from the right kidney and 9% from the left. Marked improvement in the hydronephroses occurred



Figure 2

"Lumbar aortogram showing narrowing and irregularity of the abdominal aorta below the origin of the renal arteries."

as renal function improved. Blood pressure at this time averaged about 120/80.

In August of 1954, after another ureteropyelogram had localized the ureteral narrowing at the middle third, the right ureter was explored extraperitoneally. The right ureter was markedly dilated down to the level of the fifth lumbar vertebra where it abruptly entered into a firm fibrous mass. The mass extended distally for about nine centimeters and was adherent to the peritoneum and external iliac artery. The mass was incised to a depth of about one half centimeter and a biopsy was obtained. With further dissection, the ureter was identified and encircled within the mass. The ureter was then easily freed and completely delivered from the mass. The ureter was moved laterally and the peritoneum sutured to the lateral edge of the mass to prevent return of the ureter to its previous site. Microscopically, the biopsy specimen consisted of dense fibrous connective tissue resembling scar tissue. There was a diffuse infiltration

of moderate density with round cells, plasma cells, and polymorphonuclear leukocytes. There was no evidence of neoplasia.

During the following months the nephrostomy tubes were kept open and the patient returned to his previous occupation. Although #12F dilating bulbs could be passed cystoscopically to the right kidney and #10 bulbs to the left kidney, one could not be sure that the surgical procedure had really improved the physiologic right ureteral obstruction. Left ureteral surgery therefore was not done.

The nephrostomy tubes were changed occasionally and the renal form and function were checked by antigrade pyelograms and P.S.P. tests at intervals. Since renal function did not deteriorate with the nephrostomy tubes closed off for periods of several months at a time, the right nephrostomy tube was finally removed fourteen months after the right ureterolysis had been done. Left renal function remained poor and the hydronephrosis was unchanged so the left nephrostomy drainage was discontinued three months later.

Vigorous repeated courses of antibiotic therapy at this time failed to sterilize the urine; however the patient felt well and continued to work. An intravenous urogram done in April 1956 (four months after discontinuing all tube drainage) showed fair excretion and improved hydronephrosis on the right side. There was insufficient function for visualization of the left side. During all this time the patient developed no signs of arterial insufficiency or dilation of the veins in the legs. The blood pressure also remained normal.

In December 1956, 2 years and 10 months after his first admission, the patient was readmitted in a moribund condition. Eight months after his last ureteral dilation he had apparently developed an acute pyelonephritis and sought no aid for it until he was too weak to walk. He died a few days after admission despite antibiotic and cortisone therapy.

POSTMORTEM EXAMINATION

The body was that of an emaciated young colored male who appeared to be his

stated age. The uniquely unusual feature of the autopsy findings was the encasement of both kidneys, both ureters, and the abdominal aorta, from a level just below the origin of the renal arteries downward including the iliac arteries, in a sheet of dense fibrous connective tissue which, in some places, measured 1 centimeter in thickness. This tissue also covered the sacrum and posterior wall of the true pelvis. The incarcerated segment of aorta was markedly constricted and narrowed, so that the calibre of the lumen was no larger than that of a lead pencil (6 mm. in diameter). The diameter of the aorta proximal to the renal arteries was normal. The inferior vena cava, however, was not constricted. Both ureters were thickened and fibrosed and were constricted by the dense fibrous connective tissue so that a considerable degree of obstruction had been produced. Consequently, the left kidney was completely destroyed as a result of pyonephrotic atrophy and weighed only 50 grams. It consisted virtually of a thick-walled cystic structure containing puriform material in which the remains of the calyces were still manifest. There were no renal stones. The kidney was encased in a rigid fibrous connective tissue mass. The right kidney weighed 150 grams. The capsule was markedly thickened and the organ was likewise encased in a rigid mass of dense, fibrous connective tissue. The renal pelvis and calyces were considerably dilated and filled with puriform material. Microscopically, the left kidney was completely destroyed. The right kidney showed numerous closely-placed areas of scarring, fibrosis, and renal atrophy which were infiltrated with round cells. The mucosa covering the calyces was ulcerated and covered with an exudate of fibrin. The wall of each ureter was thickened and diffusely and heavily infiltrated with round cells, plasma cells, and neutrophils. The surface epithelium was ulcerated. Sections of the dense fibrous connective tissue showed only a few small scattered foci of round cell infiltration. Death was caused by uremia.

Naturally, it is extremely difficult to be certain of the etiology of this condition. The marked constriction of the aorta might

lead one to infer that the condition was acquired as an aftermath of an extensive retroperitoneal inflammatory reaction when the aorta possessed a diameter of 6 mm. This would fix the time of the insult as occurring in infancy or early childhood. Another possibility is that the lesion represents a congenital malformation. The lesion ultimately resulted in death, due to constriction of the ureters by the scar tissue with resulting extensive renal damage and infection.

REVIEW

On reviewing the 31 cases of a similar nature reported in the literature, there seems to have been no common background of urinary or systemic infection. Cases have been reported in both the Caucasian and Negro races and in both sexes; however males predominated numerically, 19 to 8. The age at diagnosis ranged from 23 to 69. Presenting symptoms have most often consisted of flank pain which culminated in acute anuria in 7 of the reported cases. The other symptoms mentioned included hematuria, vague abdominal pains, pain simulating renal colic, weakness, and sometimes fever. In any event, the symptoms and findings were quite sufficient to lead to investigation of the urinary tract by pyelogram. Either non-function or some degree of hydronephrosis was observed in every case. Ureteral obstruction was encountered at any level but most commonly over the sacral area. Despite marked obstruction and even in the presence of anuria, several authors mentioned the ease with which ureteral catheters could be passed. Leg swelling⁹ and calf pain on walking¹⁴ were mentioned once each as symptoms but, unfortunately, aortography was not performed in either case. Aortograms were mentioned as being normal in the one case¹¹ in which the inflammatory mass was adherent to the spleen, tail of the pancreas, and splenic flexure of the colon. Raper¹¹ mentioned partial encircling of the aorta with "indentation" of the aorta at the level of the diaphragm in one of his cases coming to post-mortem examination. He further discussed the possibility of vascular involvement by

the inflammatory mass and stated that although no instances were found in the vascular surgical literature of such involvement, a surgical colleague had encountered two cases in which the process may have been present. Unfortunately, each case had preceding occurrences which of themselves could well have caused localized inflammatory changes. Despite the marked compression of the aorta encountered in the present case, there was no appreciable obstruction of the vena cava—the ureters being the critical structures involved in the mass. It seems reasonable to suppose that cases will occur in which arterial or venous difficulties will be prominent.

Treatment has been mostly dictated by the amount of renal damage caused by the obstruction. Nephrectomy, or at least nephrostomy has often been necessary preliminary to an attack directly on the point of ureteral obstruction. It was possible to free the ureter and deliver it from the encompassing fibrous mass with surprising ease in almost all of the surgically explored cases. Most of these cases did well at least during short term follow-up and apparently did not tend to develop recurring obstruction. In the present case however, the inflammatory process continued to extend and had again surrounded the ureter by two and a half years after the ureterolysis. Ureteral obstruction may have been relieved somewhat by cortisone treatment in one of two cases¹⁷ and by x-ray therapy used in another two cases.^{1,3}

SUMMARY

A case of ureteral obstruction caused by a non-specific retroperitoneal inflammatory mass is presented. It is apparently the first case in which the abdominal aorta has also been compressed by the mass. The entity was first described in 1948 and the present case is the 32nd to have been reported in the succeeding 10 years.

The etiology of the process is unknown but it does not appear to be recent urinary or intraperitoneal infection. The process is characterized by the presence of a localized firm fibrous retroperitoneal mass microscopically composed of dense fibrous connective

tissue with small scattered foci of adipose tissue and other foci of round cell infiltration.

The condition is important in that it may compress structures traversing the retroperitoneal area, particularly the ureters. The diagnosis can be made only by surgical exploration and biopsy.

Surgical freeing of the ureters from the mass seems to be helpful although on occasion the process has improved under antibiotic, cortisone, or x-ray therapy.

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IDIOPATHIC HYPERTROPHY OF THE HEART

CASE REPORT

WALKER STAMPS, M.D.

About once or twice each year there appears on this 100-bed medical service a patient in congestive failure with a large heart for which no conventional etiologic process can be demonstrated. There is no history of rheumatic fever nor murmur to suggest valvular deformity. Significant arterial or arteriolar disease is absent. Hypertension is not present and there is no support for a diagnosis of syphilis, beri beri, collagen disease or bronchopulmonary disease. The majority of instances have been reported to occur in negro males.¹ Systemic and pulmonary embolizations appear commonly. Friedberg describes this as idiopathic hypertrophy of the heart.²

CASE REPORT

History of Present Illness: This 47 year old Negro male was in excellent health, performing hard labor in the destruction of old buildings until three weeks ago. At this time he awoke during the night acutely short of breath. This symptom has persisted. He has had a sensation of tightness in the chest but no pain. No edema. Moderate, non-productive cough.

Past Medical History: Negative.

Family History: His father died of dropsy at age 74; his mother died age 73 of high blood pressure.

Physical Examination: The patient was a well-developed, well-nourished male, with rapid, shallow, and slightly labored respiration. His neck veins were distended in the semi-recumbent position. The fundi were normal. Numerous, coarse and medium moist rales were heard over the lower one-half of the right lung posteriorly. The heart was markedly enlarged, the apex being in the left anterior axillary line in the 6th intercostal space. The rate was 104, the

rhythm regular and the blood pressure 130/90. A soft, slightly tender liver edge was felt two fingersbreadth below the right costal margin. There was no peripheral edema.

Laboratory Data: Normal except for 19 gm.% of hemoglobin and hematocrit of 50%. The urine contained 1+ albumin. An x-ray of the chest (Figure 1) showed the heart to be considerably enlarged, particu-



Figure 1

larly in the region of the left ventricle. There was moderate pulmonary congestion but no effusion. Serial electrocardiograms showed nonspecific abnormality with T wave inversion and slight coving in leads I, aV₁, V₅ and V₆. There was no ST segment deviation. The findings were interpreted as those of left ventricular hypertrophy. There was no evidence of myocardial infarction.

Course in the Hospital: The patient was given a 440 mg. sodium diet, rapidly digitalized and given injections of 2 cc Mercurhydrin at two day intervals. There was a

rather dramatic weight loss of 25 pounds during eight days, seemingly out of proportion to water retention. On the eighth day a repeat chest x-ray (Figure 2) showed a heart of almost normal size and clear lung fields. On the 20th hospital day the left



Figure 2

leg became painful, cold and pulseless. A laparotomy was performed and a cylindrical mass of clotted blood was removed from the left common iliac artery. The left leg, however, became gangrenous and was amputated at mid-thigh. During six months the patient was provided with an artificial limb, became ambulatory, asymptomatic and was discharged. He was gainfully employed as a caretaker of a comfort station, took 0.5 mg digoxin daily and adhered to his sodium restricted diet. Five months later he was readmitted to the hospital because of persistent dyspnea and nausea. His hospital course was one of chronic congestive failure, nausea and hemoptysis, despite varied and intensive therapy including oxygen, digitalis and dicumarol and diuretics. He expired seventeen months after the onset of his illness.

Necropsy Findings: The heart weighed 625 grams. Both ventricles were hypertrophied, especially the left. The myocardium was firm and brown. There was a

small densely adherent thrombus in the apex of the left ventricle. Both coronary arteries were patent throughout and adequate in calibre. The left lung weighed 500 grams. There was a hemorrhagic infarct of the peripheral portion of the upper lobe measuring 6 cm. in diameter. The right lung weighed 1050 grams. There was a large infarct in the lower lobe which occupied approximately one-half of its volume. The infarcted area was deep red in color and consolidated. The remainder of the lung was somewhat congested and edematous.

Microscopic Description: One section of the heart showed slight to moderate increase in the amount of interstitial connective tissue. A second section showed a mural thrombus attached to the endocardium. The underlying myocardium showed a focus of myocarditis manifested by focal areas in which the muscle fibers had been replaced by proliferated fibroblasts. This newly formed connective tissue was rather heavily infiltrated with round cells and macrophages. The arterioles in the myocardium were free from sclerosis. A third section of the heart showed a considerable area in which the subendocardial muscle fibers had been replaced by dense fibrous connective tissue which was infiltrated with round cells, macrophages and histiocytes heavily pigmented with hemosiderin. A coronary artery 2 mm. in diameter was visualized in one of the sections. It showed only a minimal degree of atherosclerosis. The vessel was widely patent. Microscopic sections of the kidneys showed an essentially normal architecture. An occasional arteriole was sclerosed. In general, the patency of the arterioles appeared to be adequate.

SUMMARY

A case is presented of cardio-megaly, chronic congestive failure and death due to interstitial fibrosis of the myocardium of undetermined etiology.

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CRYPTOCOCCUS INFECTIONS IN MAN

OWEN P. LAMERSON, M.D.

Cryptococcus infections have been reported with increasing frequency during the last few years. This probably is due to an increased awareness of the clinical manifestations of this disease, enabling physicians to carry out the necessary laboratory procedures to ascertain its presence. Cases of cryptococcosis have been reported from almost every country in the world, in both sexes, and in every age group. It is a protean disease which can assail practically every organ in the body, but has received most of its notoriety because of its cruel and highly fatal invasion of the central nervous system.

HISTORICAL ASPECTS

Zenker, in 1861, probably described the first case in a man who died of a fungus infection of the central nervous system. Busse, in 1894, reported a man with a subperiosteal abscess of the tibia containing a budding, yeastlike organism who later died of a generalized infection of the skin and viscera. Curtis, in 1896, found a yeastlike organism in a myxomatous tumor of the hip and Van Hanseman, in 1905, isolated a yeast from the spinal fluid of a suspected case of tuberculous meningitis. In this country, in 1916, Stoddard and Cutler reported two cases in patients with signs of brain tumor caused by a budding fungus. They named this fungus *Torula histolytica*. Carton, in 1951, reviewed the literature and found approximately 220 published cases to that time.

MICROBIOLOGY

The causative agent in this disease is *Cryptococcus neoformans*, which is a non-sporulating, non-mycelial, budding, yeastlike fungus belonging to the *blastomyces* group. It may be grown at room temperature or at 37° C., on all common laboratory media. It produces a brownish, mucoid

colony at room temperature on Sabourauds media. This fungus characteristically forms a wide capsule both in the tissues and on culture media. The capsule can best be seen by placing a drop of india ink in the material to be examined on a slide and covering it with a cover slip. The organism is then seen as a thick-walled, spherical, at times budding cell, 5 to 15 microns in diameter, surrounded by a wide, clear capsule. In general, *C. neoformans* displays little biochemical activity on most media though a few strains will produce acid from a number of the carbohydrates. The pathogenicity of the organism may be proven if infected material is injected intraperitoneally or intracerebrally in the mouse, where it is highly infectious. This differentiates it from the non-pathogenic cryptococci which are occasionally found in the stool and on the skin.

PATHOLOGY

The vast majority of the reported cases had central nervous system involvement. In Carton's review of 220 cases, 201 had disease of the nervous system. The organisms may be found free in the spinal fluid, in the meninges, and in the perivascular spaces in the brain substance. All areas of the brain may be involved. Often, there is little cellular reaction about the organisms which may form jelly-like masses or cysts. At other times, the organisms may be surrounded by a chronic, inflammatory response with giant cells and macrophages being present. The organisms may be seen free or within the endothelial cells. Meningitis is seen in roughly half the central nervous system cases and is characterized by pale, grayish, translucent nodules very similar to tuberculous meningitis.

In the lung, the second most commonly reported site of infection, the lesions, according to Haugen and Baker, may be mili-

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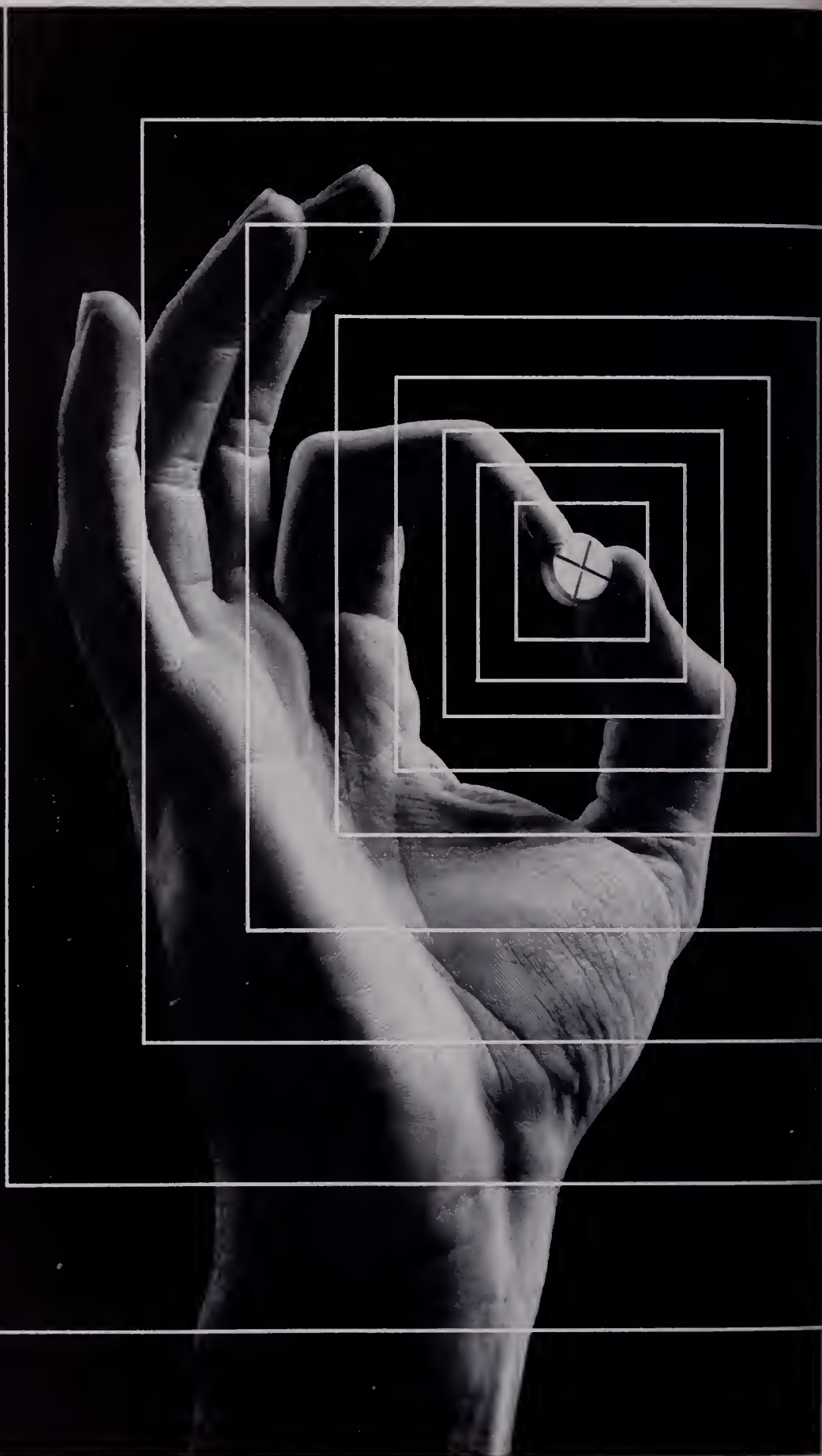
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TABLETS: Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

SYRUP: Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

1. Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.

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tary, consisting of masses of organisms only, or subpleural nodules composed of non-encapsulated giant cells, lymphocytes, and macrophages. Occasional "caseation" was seen, but this was felt to be due to a necrosis of masses of organisms and not the caseation of the tuberculous nodule. The lesions can easily be confused with sarcoid or tuberculosis. The kidney, spleen, and lymph nodes are not uncommonly involved. Here, similar granulomatous lesions have been reported. In the skin, acne-like lesions and ulcerations are sometimes seen.

EPIDEMIOLOGY

The source of the infection in man is unknown. *Cryptococcus neoformans* occurs spontaneously as a disease in animals and has been reported in the ox, horse, and swine. No proven cross infection from animal to man has been demonstrated. The organism is also found in the soil and is probably very widespread in nature. Some investigators believe the portal entry is through the lungs. Healed pulmonary lesions have been found in some cases of patients dying of *Cryptococcus meningitis*. It is admitted, however, that these lesions might have been those of old-healed tuberculosis. The skin and gastro-intestinal tract have also been incriminated. The wide dissemination sometimes seen certainly suggests a hematogenous spread from some initial focus.

CLINICAL MANIFESTATIONS

By far the most common manifestation of the disease is some abnormality of the central nervous system.

The infection of the central nervous system is a chronic inflammatory disease which gives a wide variety of neurological manifestations. It most commonly mimics tuberculous meningitis. It has also been confused with brain tumor, brain abscess, chorio-meningitis, subarachnoid hemorrhage and encephalitis. Most of the patients will run a low grade fever; however, temperatures that exceed 101.0° are so unusual in this disease that if present, they suggest some other illness. The temperature is not

uncommonly normal. Little or no help can be derived from the blood picture which is often normal or shows only a slight polymorphonuclear leucocytosis. The cerebral spinal fluid also gives variable results. Most patients exhibit some increase in spinal fluid pressure; however, it may fall within normal limits. The fluid may be clear or slightly opalescent and even xanthochromic. The protein levels are almost always elevated and the sugar and chloride contents are usually depressed. The depression of these latter values is usually significant but only in the moderate range. The cell count has been reported anywhere from 6 to 1800 cells per cubic millimeter. Lymphocytes usually predominate but occasionally polymorphonuclears are the most numerous cells seen. Serological tests and skin tests are of no value in the diagnosis of this disease, since they are usually negative in proven active cases.

Hence, the diagnosis of central nervous system cryptococcosis cannot be made until the organism is seen on smear or culture. These are often negative on any one examination. Therefore, the fluid must be repeatedly examined and cultured, and all cultures incubated for at least 1 month to 6 weeks before they are discarded as negative. The organisms can be cultured from the sputum in cases of pulmonary cryptococcus and in the urine in cases of renal involvement. Occasionally, blood cultures are positive in disseminating cases.

The central nervous system form of the disease has been highly fatal in the past. Carton stated that 70% were dead within 3 months of the onset, and 86% died within the first year. Up until the time he compiled his data in 1951, he knew of only one proven case of cure of the central nervous system form. This was the case of Marshall and Teed, who employed sulfadiazine in large doses. That case was cleared clinically and the patient's spinal fluid was completely negative 6 years after the treatment. The rest of the survivors were apparently in a quiescent phase of the disease but still had abnormal spinal fluids up to 9 years following the onset of the illness. There were 13 reported cures in 19 patients who

did not have central nervous system involvement. Apparently, the disease is relatively benign so long as the nervous system is not infected.

TREATMENT

A very wide variety of agents have been used in the treatment of cryptococcosis. These include all of the antibiotics and sulfa drugs, roentgen ray, fever therapy, gold, vaccines, iodides, serums, copper, alkalization, and actidione. All of these have proven ineffective, except for sulfadiazine in the case of Marshall and Teed. Recently, a new agent has been introduced, Amphotericin-B. It is derived from an undescribed species of streptomyces. Preliminary reports from a number of investigators indicate that it is potent against cryptococcus and other disseminated mycotic infections. It is too early to state that this drug is curative because of the known tendency of some cases to remiss even without therapy. This drug is apparently effective only when given by an intravenous route and over a prolonged period of time. The recommended dosage is 1.0 mgm/Kg daily in glucose and water over a 6-hour period. It is usually necessary to start out at 0.25 mgm/Kg and increase the dose gradually to avoid toxic effects. The usual reactions seen are chills, fever, nausea, vomiting, headaches, and rising BUN. Phlebitis at the site of the infusion may also occur. These symptoms can be reduced by the use of aspirin and antihistaminics.

We have had the opportunity of treating one case of suspected cryptococcosis with

this agent at this hospital.* He experienced all of the above side effects, especially in the initial period of therapy. However, after the second and third weeks, he seemed to develop a tolerance to the drug and these reactions diminished markedly. The BUN which rose moderately during the therapy has subsequently returned to normal after cessation of treatment. At the present time, the patient feels clinically well, although the spinal fluid has not yet returned to normal.

SUMMARY

Cryptococcosis is probably a much more common disease than the reported cases indicate. It certainly should be suspected and looked for in any case of central nervous system disease with spinal fluid pleocytosis. Repeated attempts to culture the organism should be carried out and all cultures incubated from 4 to 6 weeks. All therapy has been poor in the past, but the new agent Amphotericin-B shows definite promise as an effective agent against this disease.

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PULMONARY EMBOLISM: A GENERAL MEDICAL PROBLEM

WILLIAM E. WILSON, M.D.

Clinical and pathological studies in the past twenty years have demonstrated that pulmonary embolism occurs relatively frequently, that it is often a subacute, and sometimes insidious, process, that it is seen more frequently in medical patients than in surgical patients and that it is usually associated with medical problems common to general practice. This differs greatly from the classic conception of pulmonary embolism as an infrequent cause of dramatic sudden death in a postoperative or postpartum patient.

TERMINOLOGY: Pulmonary embolism refers to the migration of particulate matter or gas from any portion of the cardiovascular system peripheral to the pulmonary artery and its lodgment in the pulmonary arterial tree. This discussion is limited to emboli originating as thrombi in either the right sided chambers of the heart or in the systematic venous bed contributory thereto. The process of embolism, together with the necessary antecedent thrombus formation is referred to as *thrombo-embolism*. Thrombus formation in an apparently healthy and intact vein is called *phlebothrombosis*, while *thrombophlebitis* designates thrombus formation in a vein inflamed by trauma, by lowgrade infection or by severe local metabolic disturbances such as gangrene. *Septic thrombophlebitis* refers to thrombus formation in a vein involved in frankly pyogenic infection, the thrombi themselves being infected; this type is rare. *Mural thrombosis* designates thrombus formation over a myocardial infarct or over an atherosclerotic ulcer; this type is relatively rare also.

THE INCIDENCE OF THROMBOEMBOLISM. On careful necropsy, deep venous thrombosis is found in 50% of all patients confined to bed, whereas it is recognized clinically in only 1% to 2% of general hospital patients. Antecedent thrombosis has been recognized

clinically in only 11% to 15% of patients subsequently developing pulmonary embolism, whereas careful search after non-fatal embolism has disclosed significant thrombosis in more than 50% of cases.

Pulmonary embolism also is poorly recognized clinically. Of all deaths occurring at home during 1951 in Columbus, Ohio, the diagnosis of pulmonary embolism appeared on only .76% of death certificates. Among all hospital deaths in the same city and year the diagnosis appeared on 2.91% of death certificates, possibly reflecting better clinical observation as well as necropsy study. However a 4½ year necropsy survey of deaths in custodial institutions in Columbus yielded an overall incidence of pulmonary embolism of 25.7%, slightly more than half of which represented probable cause of death. This survey was significant in that the institutional population was far more representative of the general population than is the population of any acute disease hospital. A similar necropsy survey in Pittsburgh yielded similar figures. Hospital necropsy surveys in the United States and Canada indicate that pulmonary embolism occurs in about 10% of hospital deaths and that it is the immediate cause of death of 3% to 5% of hospital deaths. Clinical surveys of pulmonary embolism in general hospitals indicate an incidence in the order of 1% of all patients. However, the fact that the ratio of clinically diagnosed non-fatal emboli to fatal emboli varies widely between 9:1 and 1:1 suggests that non-fatal emboli are being overlooked in some hospitals. Despite this, the reports of two recent surveys in general hospitals observed that pulmonary embolism was diagnosed more frequently than any other acute pulmonary condition including bronchogenic carcinoma.

CONTRIBUTING FACTORS OF INCIDENCE: Advancing age of the patient increases the

incidence, although thromboembolism is seen in any age group from 10 years upward. Only 15% of incidents occur below the age of 40, while the age group of 50 through 74 accounts for over 50% of incidents. Sex is a factor, females predominating over males in the ratio of 3:2 or better. *Antecedent morbidity* is probably the most important factor, being present in at least two thirds of reported cases. The incidence of pulmonary embolism in patients hospitalized for surgical reasons is in the order of .24% to .6%, but in patients hospitalized for medical reasons it is in the order of .6% to 1.2%. About half the patients hospitalized for medical reasons and suffering pulmonary embolism have cardiac disease, most frequently mitral deformities, and about one third are in congestive failure. Other important medical associates of pulmonary embolism include peripheral vascular diseases, blood dyscrasias, severe infections, carcinomas and any prolonged and debilitating disease. The commonest surgical events associated with pulmonary embolism are severe trauma, pelvic laparotomy, bowel resection and gastrectomy.

THE THROMBOTIC PROCESS: For thrombosis to occur, there must be either slowing of the velocity of the blood flow, damage to the venous wall or changes in the composition of the circulating blood. The first condition is seen in some degree in most cases of thromboembolism as any morbidity would cause this. Congestive failure enhances this condition. Simple vascular dependency, as seen in prolonged sitting, or even local venous blockage caused by crossing the knees, is enough to precipitate thrombus formation in apparently healthy subjects.

Local venous damage, whether caused by infection or by trauma, such as phlebotomy or the injection of irritant diagnostic or therapeutic substances, is always present in thrombophlebitis, providing a firm anchorage for the thrombus. Although venous damage is not apparent in phlebothrombosis, it is possible that there are subtle tissue changes, induced by local blood stagnation and its attendant anoxemia, capable of precipitating thrombosis. However, these

thrombi are poorly anchored, especially after clot retraction has taken place.

Significant changes in the composition of the circulating blood probably are involved in the thrombosis associated with polycythemia, platelet disorders, minor transfusion reactions, dehydration and the toxemias of systemic infections.

The antecedent thrombosis may occur in any part of the body, but the overwhelming majority occur in the deep veins of the lower extremities. In order of decreasing frequency are thrombi in the pelvic plexus, the inferior vena cava, the heart and the superior vena cava together with its tributaries. Thrombosis in the last named venous complex is about one fiftieth as common as that in the veins of the lower extremities.

THE EMBOLUS AND ITS IMMEDIATE EFFECTS: In phlebothrombosis the clot is free to move on with the blood stream as soon as retraction has occurred, and it frequently does just that, leaving no clue as to its original site. Although the clot of thrombophlebitis is theoretically well anchored, frequently a freely floating tail of clotted blood propagates proximally from the original clot, a potential embolus which can break off at any time, especially after it extends beyond a major venous confluence. The significance of physical exertion in such a condition is apparent.

If the embolus is large enough to block an entire pulmonary artery there follows severe right ventricular failure and, because of inadequate venous return to the left side of the heart, both cerebral and myocardial ischemia, with death occurring in a few minutes. This dramatic picture is relatively rare, probably occurring in less than 15% of pulmonary embolisms.

Embolic occlusion of one or more of the larger branches of the pulmonary artery causes atelectasis, edema, hemorrhage and inflammation of the affected pulmonary segments, as well as an acute cor pulmonale. Actual pulmonary necrosis may not take place because of the persistence of the nutrient bronchial arterial tree arising from the aorta. Death may not ensue, but a series of abnormal reflexes, caused by the

embolism, may lead to markedly disturbed physiology. These include reflex bilateral pulmonary vasoconstriction and further increase of pulmonary vascular resistance, reflex peripheral vasodilatation and possible shock, reflex cardiac arrhythmias and further reduction of coronary flow, reflex diffuse bronchial constriction and hypersecretion causing asthmatic type respiratory obstruction, reflex and excessively rapid and shallow respirations with resulting anoxemia and further pulmonary vascular resistance, and a reflex coronary vasoconstriction.

Embolization of smaller arterial radicles is not necessarily less serious, especially if it is multiple; abnormal physiological reflexes arising from such embolization can cause death. Usually, however, this type of embolization is quite bland, sometimes "silent".

SYMPTOMS AND SIGNS OF PULMONARY EMBOLISM: Because of the varying degrees of severity and because of the variety of reflexes engendered by pulmonary embolism there is no typical clinical picture. The over-all clinical picture may suggest any of a number of cardiac events from myocardial infarction to simple congestive failure. It may mimic a number of pulmonary diseases including pneumonia and pleurisy, with or without effusion. It may be predominately neurological because of anoxia or ischemia causing fainting, convulsions or hemiplegia. Abdominal pathology can be suggested by referred pain and by jaundice.

The commonest single symptom is severe chest pain, either pleuritic or cardiac in character. It may be caused by local pulmonary circulatory disturbances, by pleural reactions or by reduced coronary flow. Next in frequency is severe dyspnea, which may occur without clinical signs of either pulmonary or cardiac disease. It is caused by bronchospasm, reduced pulmonary circulation, atelectasis, infarction and reduced diaphragmatic excursion. Cough is relatively common, but hemoptysis occurs in less than 25%.

Of the clinical signs, spiking fever is the commonest, often being sustained for a week or more but not accompanied by chills. Occasionally the only diagnostic clue is a

fever of unknown origin, resistant to antibiotics. Another common sign is tachycardia out of proportion to temperature and to other evidences of cardiopulmonary disease. Commonly seen are such pulmonary signs as areas of dullness, crepitant rales, bronchial breath sounds and friction rubs. Peripheral circulatory collapse and circulatory failure are common. Marked rib tenderness is common also. Less common is acute cor pulmonale, manifested by dilatation and pulsation of the jugular veins, by accentuation of second pulmonic sound, by prominent pulsations in the left second and third intercostal spaces, by loud pulmonic systolic murmur, by cyanosis, by gallop rhythm and by characteristic changes seen on roentgenogram and electrocardiogram. This syndrome can be terminated by the appearance of either congestive failure or peripheral vascular collapse. Less common are coma, convulsions, nausea, vomiting, hic-cough and jaundice; the last named requires severe liver congestion and the presence of anoxia and hemolysis.

The onset of embolism may be heralded by an isolated episode of paroxysmal auricular fibrillation, by syncope or by sudden vascular collapse. Any of these may antedate other symptoms and signs and should be considered suspicious if noted repeatedly.

The *periodicity of symptoms and signs* is most characteristic. There may be prolonged quiescent periods, separated by periods of activity in which the symptoms and signs are not always the same.

LABORATORY DATA: Moderate leucocytosis, often episodic, is very common, as is elevated erythrocyte sedimentation rate. Hyperbilirubinemia is noted in 50% of cases. The electrocardiogram may or may not show a cor pulmonale configuration, including a deep S in lead I, prominent Q in lead III and inverted T waves in lead III and the right precordial leads. Transient partial bundle branch block may be present, as may be clockwise rotation or right axis shift. None of these changes are pathognomonic, and about 25% of the tracings are normal, except for the residuals of antecedent cardiac disease, if any. The serum glutamic oxalacetic transaminase (SGO-T)

level is normal, except when jaundice or recent cardiac damage may be present; this is an excellent aid in differentiating myocardial infarction.

The radiologic findings are notably unreliable, even in the hands of a capable radiologist. At times there may be no changes visible, but commonly seen are disc atelectasis, high diaphragm on the affected side, prominent pulmonary conus and arteries, edema and areas of increased luminosity corresponding to the ischemic segments. Fluoroscopy may reveal unusual activity of the diaphragm or of the pulmonary markings.

CORRELATION OF EMBOLISM WITH ANTECEDENT THROMBOSIS. The finding of venous thrombi or thrombophlebitis in the systemic circulation provides reliable confirmation of suspected embolism. The search must be meticulous and comprehensive of the body as a whole. Even then the examination may not be successful in more than 70% of cases. Clots from phlebothrombotic sources may leave no trace behind them as they embolize. However, daily examinations subsequent to the embolic event may discover new thrombotic episodes.

THE OMINOUS IMPLICATIONS OF PULMONARY EMBOLISM. A patient surviving the first pulmonary embolism faces a 30% chance of repeated attacks and a 20% chance of a future fatal attack. In cardiacs each embolic episode carries the danger of fatal circulatory changes, as well as lesser cardiovascular complications, such as simple congestive failure. It may insidiously prolong cardiac morbidity in the face of what seems to be adequate cardiac therapy. Pulmonary embolism occurring without monostable medical or surgical morbidity, or debility restriction of physical activities brings up the question of hidden disease, such as cancer, leukemia and thromboangitis obliterans. Finally, there is a small group of cases suffering repeated small embolic episodes which are not noticed clinically and which do not cause much parenchymal lung damage, but which ultimately lead to extreme embolization of the arterial tree with chronic cor pulmonale resembling Ayerza's disease.

PROPHYLAXIS AND TREATMENT: It is evident that every effort must be made to abort thromboembolism and to prevent further embolization. The results following the use of anticoagulants, thrombotomy and venous ligation have not been uniformly good, continuing embolization and even fatalities occurring in the face of apparently adequate management. However, excellent results are seen from time to time, and each new case should be given the benefit of available therapy. Theoretically the anticoagulants are useful in preventing the propagation of free floating clots at sites of thrombophlebitis as well as preventing fresh phlebothrombosis. Venous ligation should be useful in blocking embolization of formed phlebothrombotic clots; bilateral femoral ligation has given better results than has unilateral ligation.

Among the debilitated and bedridden aggressive physical therapy tailored to the patients' physical capacities is a better clot preventive than is sitting out of bed with legs in dependency. Elastic stockings serve to reduce the volume of the venous bed and to promote venous return. Pressure upon soft parts of the extremities, as caused by tubular framed furniture is to be avoided. Finally the patient must get up on his feet and walk as soon as, and as long as it is physically feasible.

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PROBLEMS ARISING WITH BLOOD TRANSFUSIONS

C. DAVIS BELCHER, M.D.

The tremendous increase in blood transfusions has brought many problems into the limelight which were formerly of only technical importance. With patients receiving blood from many donors the possibility of disease transmission is heightened. Rare blood types and a variety of reactions present new problems as the use of blood transfusions continues to mount.

How much blood to give must be decided by clinical judgment, but simple calculations can give information that will be a helpful guide. Consider first the patient who comes in with a severe anemia, who is not actively bleeding and whose general condition supports the assumption that his blood volume is essentially normal. Blood volume can be taken as 8% of body weight, but you must decide whether to use actual weight or make allowances for edema, dehydration or malnutrition. Having decided, any one of the three following formulas will give a reasonable approximation to the blood requirement. The one to be used depends on whether the laboratory reports red cell count, percent hemoglobin, or grams hemoglobin.

1. $\frac{(\text{Desired RBC-measured RBC}) (\text{Weight in pounds})}{125,000} = \text{cc of blood required.}$
2. $0.4 (\text{Desired Hemoglobin percentage - measured Hemoglobin percentage}) (\text{Weight in pounds}) = \text{cc of blood required.}$
3. $2.66 (\text{Desired Hemoglobin in grams - measured Hemoglobin in grams}) (\text{Weight in pounds}) = \text{cc of blood required.}$

A single example will illustrate their use.

A 150-pound patient is admitted with an RBC of 1,200,000, and hemoglobin of 25% or 3.75 grams. Clinically it is judged the patient's weight is normal, blood vol-

ume is normal and he has not bled recently and is not bleeding now. It is desired to transfuse this patient until his RBC equals 5,000,000, hemoglobin equals 100%, or 15 grams.

Using Formula #1

$$\frac{5,000,000 - 1,200,000}{125,000} \times 150 = 4,560 \text{ cc.}$$

Using Formula #2

$$0.4 (100 - 25) 150 = 4,500 \text{ cc.}$$

Using Formula #3

$$2.66 (15 - 3.75) 150 = 4,488 \text{ cc.}$$

The answers indicate that the transfusion of nine pints of blood will correct the deficit. This is a lot of blood. If the patient's condition is not critical, it can be given over several days. When haste is essential, the addition of 4,500 cc to the blood volume may not be tolerated, in which case the use of erythrocyte transfusion is helpful. This is accomplished either by aspirating the red cells or the plasma to produce a suspension of erythrocytes in a greatly diminished volume of plasma. This introduces the hazard of infection, as needles or pipettes must be inserted into the blood bottle. In some institutions a special holder is employed which permits centrifuging the blood bottles so the erythrocytes are collected at the delivery end against the rubber diaphragm. The bottle must be maintained in an inverted position after removal from the centrifuge. The transfusion is halted when the red cells have been delivered to the patient. A simpler device is to keep some bottles hanging in the blood bank in an inverted position so that gravity collects the red cells at the delivery end. If care is taken to maintain the bottle in this position and not agitate it when it is taken to the bedside, a high concentration of erythrocytes with little plasma can be transfused.

When much blood must be given fast, there is a definite advantage in restricting the amount of plasma transfused, as the citrate solution is in the plasma and citric acid intoxication can occur. Any impairment of liver function in the recipient, whether due to intrahepatic disease or mechanical obstruction, impedes the metabolism of citric acid. Using ACD solution as an anticoagulant, an adult with normal liver function will tolerate a transfusion rate of 500 cc in 30 minutes insofar as citric acid metabolism is concerned, but when this is accelerated to 500 cc in 15 minutes practically all patients with impaired liver function, and some with normal function, will have an elevation of the serum citrate to values above normal. Serum citrate binds the ionized calcium in the blood producing a fall in the level of ionized calcium which may result in clinical tetany and death. The hazard is greatest in extensive exchange transfusions or where large quantities of citrated blood are given rapidly.

We can use the intravenous injection of salts such as calcium chloride or calcium gluconate to control the fall in ionized calcium, but it is very difficult to estimate the exact amount required and one is poised between inadequate treatment with recurrent tetany and an overdose of calcium which is damaging to the myocardium. This threat may be avoided by the development of other chelating agents to prevent blood coagulation. A solution being tried which is nearly ideal, though it adds to the technical problem, is decalcified blood. The blood is collected by passage across a cation exchange resin and during this passage the serum Ca, K, and Mg., are replaced by Na ions resulting in the suppression of blood clotting. When decalcified blood is transfused, the calcium must be replaced in an accurately calculated manner.

Many observers have noted that blood clotting is impaired when multiple transfusions are given in a short period of time. This is not due to the anticoagulant effect of the ACD solution but is more directly connected with the absence of prothrombin accelerator and platelets in bank blood.

Multiple rapid transfusions may overload the circulation, causing elevated venous pressure and pulmonary edema which can be rapidly fatal. Tourniquets on the extremities, which will obstruct venous return, together with venesection, if necessary, are essential in treatment.

When large quantities of blood are rapidly transfused, ventricular fibrillation may occur. The cause is not certain but it is contributed to by either the lowering of the serum level of ionized calcium, the excess potassium present in bank blood or the cooling of the myocardium. This latter factor is worth consideration. Bank blood varies in temperature from 4° to 10° C and when large amounts are introduced into the circulation rapidly, it is conceivable that the temperature of the myocardium can be reduced to around 25° C, which is the critical level for the appearance of arrhythmias as a result of cooling alone.

To prevent these complications requires the avoidance of situations requiring rapid large transfusions. During surgical procedures the blood loss should be closely followed by weighing sponges and contents of the suction bottle. Blood should be promptly replaced without waiting for the appearance of shock and the necessity for rapid transfusions. The use of a plasma expander every third bottle or so will give the body a chance to catch up and avoid excessive electrolyte disturbance.

When large quantities of bank blood are given in a short time, the excess potassium present in the bank blood plasma may produce hyperkalemia. A continuously recording electrocardiograph makes it easier to detect excess potassium, tetany, or the onset of fibrillation. When ventricular fibrillation occurs, an acute emergency exists and defibrillation and cardiac massage must be promptly instituted.

Blood can be damaged so that reactions occur. During storage or transportation it may be accidentally frozen or heated so that hemolysis occurs. During administration, if it is mixed with dextrose or any hyper or hypotonic solution, hemolysis may result. Blurring or staining of the label may

result in the use of old blood with excessive nonviable cells or hemolysis present.

The excretion of iron by the body is extremely small and there is little or no provision for excreting excesses. The absorption of iron from the intestinal tract is a local phenomenon that continues even though excess iron is stored in the body. When transfusions are given to replace blood lost by hemorrhage, there is little disturbance in body iron; but when transfusions are given repeatedly over many years in chronic illnesses associated with blood destruction, excess iron will accumulate. This exogenous transfusional siderosis may produce large deposits of iron in the liver, adrenals, heart, and skin as well as other locations.

When blood is transfused, pathological organisms in the donor blood may reach the recipient and produce disease. With careful selection this risk is reduced but never eliminated. A constant hazard is the transmission of homologous serum jaundice. There are two forms of this disease recognized clinically, both of which are capable of being transmitted by transfusion. The first is infectious hepatitis, caused by virus A, which can be transmitted by the oral route from infected individuals as well as by injection with contaminated material as the virus is present in both the gastrointestinal tract and the blood stream. The second is serum hepatitis caused by virus B, which is present only in the blood stream of infected individuals and can be transmitted only by contaminated needles, blood, or similar incident. The two forms of hepatitis differ somewhat in their clinical course. Infectious hepatitis, due to virus A, is quicker in onset, varying from two to six weeks, and patients are sicker than those developing serum hepatitis due to virus B, which appears in from six weeks to six months and is likely to be insidious and milder in its course. Those patients who have infectious hepatitis due to virus A, even though caused by blood transfusions, will have virus in their gastrointestinal tract and the disease can be transmitted to contacts by the anal-oral route.

The majority of patients with homologous serum jaundice run an uneventful course

and recover after several weeks; a few run a more protracted course but finally recover. It is not unusual to have a temporary relapse when these patients become more active near the end of their illness.

A few cases, probably less than 5% develop chronic hepatitis or die of the disease. Liver biopsy is of great value in evaluating the severity of the liver damage in those patients who are making delayed recoveries. The fatal cases fall into three groups:

1. Acute—Fulminating course with death within a few days of onset. They occasionally die before definite clinical jaundice has appeared.
2. Subacute—These patients develop increasing liver insufficiency and die two or three weeks after the onset of the disease.
3. Death due to cirrhosis, which occurs late in the disease.

Efforts have been made to screen donors beyond routine questioning in an effort to reduce the incidence of hepatitis. The thymol turbidity test has been employed as a criteria with values of plus 8 Shank-Hoagland units being employed as the upper limit for acceptable blood donors. From 5% to 15% of typical screened non-professional donors may be rejected because of having abnormally high thymol turbidity tests. When these donors are rejected it does not cause the disappearance of hepatitis but simply reduces its incidence. The rather high rejection rate for donors, the failure to eliminate the disease, and the cost of performing an additional test has prevented this procedure from finding wide acceptance. However, where blood is to be given to an individual in whom, for clinical reasons, the occurrence of homologous serum jaundice is particularly to be feared, the use of this procedure would provide an added factor of safety.

There are no available tests to distinguish between Virus A and Virus B. Clinically, we know from epidemics resulting from oral ingestion of Virus A that a lasting immunity is conferred in infectious hepatitis. Where many cases of serum hepatitis due to

Virus B have followed use of contaminated injectibles, their subsequent history has shown that little or no immunity is conferred. In addition, there is no cross immunity between these two infections.

The storage of blood in refrigerated banks has no effect on the survival of the virus, in fact cases have resulted from the use of bone and other tissues stored and later used as grafts.

Attempts to destroy the virus by ultra violet, high energy electrons, cobalt bomb radiations, and other means have so far failed to produce any procedure suitable for wide application.

Malaria is a rare complication in our geographic area, although people move about so rapidly by air transportation and in association with military duty that an occasional infected donor may get by the screening procedures. *Plasmodium vivax* is overwhelmingly the most common parasite transmitted by transfusion with an incubation period of 6 to 20 days. It may be mistaken for hepatitis. The disease is usually milder and responds to antimalarial drugs better than when transmitted by mosquito bites. In blood banks operating in endemic areas, such as those of the Philippine Red Cross, routine blood smears are done for malarial parasites, but this fails to eliminate the disease. Donors with a history of malaria dating back 20 years or more may become infective intermittently. Storage of blood at bank temperature cannot be depended upon to kill the parasite. Donors should be rejected if they have lived in a malaria zone within three years without evidence or history of the disease.

Syphilis is well controlled by the routine serology tests on donors and the fact the spirochete dies when stored three days at blood bank temperature. Hazard exists only when blood stored for less than this period is employed, in which case spirochetes can be transmitted from an infected donor who has not yet developed a positive serology. No primary lesion will appear; the secondary lesions can well be missed or incorrectly diagnosed and the disease go untreated. A reasonable control is to do routine serology

after the lapse of a few months on those recipients receiving such blood.

Blood stored in banks possesses bacterial contamination in many instances. If these organisms die or fail to grow at bank temperature, no ill effect will result. However, the gram negative non-spore forming rods of the paracolon, coliform, and pseudomonas group are of low pathogenicity but may produce fatal reactions because they continue to grow at blood bank temperature and release endotoxins into the stored blood. Fatal reactions usually occur with blood that has been banked at least two weeks. The reaction is due to these endotoxins and neither antibiotics nor specific antibacterial sera affect it. If the reaction is not quickly fatal, there is the likelihood that living bacteria carried in the transfusion may grow to produce a fatal septicemia. Here specific antisera or antibodies may be helpful. Smear and culture must be done on both donor and recipient blood. The bacteria causing these reactions are frequently resistant to antibiotics that are safest to employ and, even though antibiotics and antisera are employed, the dose of endotoxin received may still prove fatal. These are serious reactions which fortunately are rare. There are no drugs or sterilizing procedures available at present that will remove this hazard without injury to the stored blood.

The appearance of pyrogenic or allergic reaction to a transfusion is annoying because they can occasionally be serious and, in addition, raise the question of a more serious hemolytic reaction which requires prompt appraisal.

Pyrogenic reactions are supposedly caused by carbohydrate substances which result from the destruction of bacteria and perhaps blood cells and other protein products by heat. Such products are capable of causing allergic reactions as well and sharp distinction is not possible. They are not destroyed by sterilizing procedures. Where transfusion flasks and tubes are cleaned and sterilized for repeated use and fluids for intravenous use are prepared locally, pyrogenic reactions are frequent. Disposable bottles and tubing have made such reactions

a rarity and one should be hesitant about making the diagnosis. It has been claimed that the administration of 10 grains of aspirin prior to transfusion will abolish such reactions but this is difficult to verify.

Allergic reactions, while usually mild, may be severe or fatal. They occur in the usual allergic situations where there is either passive transfer of sensitivity from an allergic donor to a normal recipient, the transfer from the donor of a specific allergen, which is commonly a food substance, to which the recipient is hypersensitive, or a patient may be sensitive to the blood of a particular donor. Recipients who have liberated histamine as the result of shock or who are subjected to rapid transfusion are more likely to show allergic reactions. These may vary from urticaria, which is mild and frequent, to fatal anaphylactic shock, which is rare. Severe respiratory distress due to asthma or edema of the glottis or larynx may occur. Some type of allergic reaction appears in about 2% of recipients of transfusions. The refrigeration of blood in banks does not appear to affect the incidence of such reactions. The use of fasting blood donors and rejection of those with an allergic history helps.

When blood must be given to a known highly allergic recipient, it is well worth while to skin test the recipient with donor plasma prior to the transfusion. The use of an antihistamine, such as Benadryl or Pyribenzamine, prior to transfusion is effective, or an injectable antihistamine, such as Chlortrimeton Maleate added directly to the transfusions in doses of 20 mg. added to the first pint and to alternate pints thereafter, may be employed. When no prophylaxis has been given and an allergic reaction appears while blood is being transfused, the safest course is to discontinue the transfusion. However, the need for blood may be urgent, the blood type rare, and additional blood not immediately available. The addition of an injectable antihistamine to the transfusion will usually result in the prompt subsidence of a mild urticarial reaction, but if the reaction is of a more severe type, the relative risk must be appraised.

An unusual situation exists where a patient has been recently treated with corticosteroids but treatment has been stopped prior to giving a blood transfusion. Any type of reaction is a definite stress to which they may be unable to respond. Such a patient should be protected by steroids prior to transfusion.

A large percentage of severe reactions have their onset soon after the blood is started. Where the situation permits, it is desirable for the first 50 cc of blood from each transfusion bottle to be run in slowly.

The basic major crossmatching technic of donor cells in saline suspension against recipient serum aided by minor crossmatch of recipient cells in saline against the donor's serum was, and is, the major bulwark against incompatible transfusion, the incompatibility being made apparent by red cell agglutination.

With the discovery of the Rh factor and newer blood groups, identified as Kell, Kidd, Duffy, Cellano, and others, came the recognition of dangerous antigens which did not produce antibodies capable of causing agglutination of red cells in saline suspension. Because of their failure, even though present in high titer, to agglutinate sensitized red cells in saline suspension they are referred to as incomplete antibodies and special tests are required to reveal their presence.

A satisfactory routine crossmatch shows only ABO compatibility and serious or fatal reactions can occur due to these incomplete antibodies despite a perfect crossmatch prior to transfusion.

The most desirable type of test for incomplete antibodies is one which will produce agglutination when they are present, as such a test is clear cut and readily recognized. Diamond and Denton discovered that if Rh positive red cells were suspended in albumin instead of saline they would be agglutinated by serum containing incomplete Rh antibodies. It was later found there were a variety of protein or colloid media that could be used. While sensitive for Rh incomplete antibodies, it may fail to detect other incomplete antibodies and

false reactions due to pseudo-agglutination are troublesome.

Morton and Pickles showed that when Rh positive cells are treated with trypsin and suspended in saline they will then be agglutinated by anti Rh antibodies in blood serum and good clear-cut agglutination is produced for the Rh factor although it can miss other incomplete antibodies.

At the present time the indirect Coombs test is outstanding and is sensitive and reliable for all incomplete antibodies. This test depends upon the following principles. Incomplete antibodies are globulins. If a serum containing such incomplete antibodies is mixed with red cells containing the corresponding antigen and incubated for a short time, the globulin will be absorbed onto the red cells. After washing a properly prepared anti-human globulin sera is added and agglutination will occur. When this test is used as a check on blood compatibility, it only tells you that there are or are not antigens in the donor red cells that will be agglutinated by incomplete antibodies in the recipient's serum. If no agglutination occurs, the blood is compatible insofar as incomplete antibodies are concerned. If agglutination does occur, the blood is incompatible. To determine the exact group of the incompatible antigen and incomplete antibody requires considerable work and the availability of a wide range of test cells and sera. From the larger hospitals and special laboratories where this is done, it has been found that about one patient in a hundred has incomplete antibodies in their blood serum of which about one-half are anti-Rh. The overwhelming majority, if not all, of the incomplete antibodies are acquired as the result of pregnancy or intravenous or intramuscular blood. With the increasing use of blood transfusions and repeated hospitalizations for chronic illness, it is obvious that while the chance of having a serious reaction due to incomplete antibodies might be statistically insignificant when applied to the total population, it becomes much more likely when applied to a hospital population who possess such incomplete antibodies to a much greater degree.

It must be appreciated that the performance of ABO and Rh typing, major and minor crossmatches, and Coombs test only assure us of a compatible blood for transfusion at this time. It does not tell us anything about other blood group antigens which may be present in the donor red cells for which no incomplete antibodies are present in the recipient's blood serum. Following the transfusions such an antigen, if present, will incite the formation of incomplete antibodies and the same donor's blood one year later may be capable of causing a fatal hemolytic transfusion reaction in the same recipient. Although rare, such possibilities emphasize that nothing can be taken for granted.

The general population for example is about 10% Kell positive and the Kell antigen is a good stimulator of incomplete antibodies. Cases of fatal hemolytic transfusion reactions and erythroblastosis fetalis as a result of the Kell factor have been reported. We have taken adequate steps to prevent these conditions insofar as the Rh factor is concerned but with more and more transfusions being employed, the use of Kell factor testing seems a rational next step. At least for all female children and preferably for all women who have not reached menopause, it would be good medical practice to do Kell typing and if they are Kell negative, which 90% will be, make certain they do not get Kell positive blood. While fatal reactions and fatal cases of erythroblastosis fetalis have resulted from other incomplete antibodies except those due to Rh and Kell sensitization, they are less significant numerically. It is to be hoped that eventually all females who may become pregnant will be widely protected when transfusions are given, as it is only by this means that the incidence of erythroblastosis fetalis will be reduced to its biological minimum resulting from matings between individuals of incompatible blood types.

When a hemolytic transfusion reaction occurs, it means there is an increased rate of destruction of either the donor's red cells or the recipient's cells. Faced with such a reaction it is helpful to be able to evaluate rapidly its probable cause. From a chart showing the possibilities with each type, it

is apparent that some are more hazardous than others.

Of course minor mismatches can be severe and even fatal, but the majority of fatal transfusion reactions are still due to major mismatches in the ABO system and are the result of clerical error, haste, or confusion which results in the wrong blood being transfused rather than to defects or deficiencies in the typing and crossmatching procedure.

Consider a recipient with no previous history of pregnancy, blood transfusion or intramuscular injection of blood to sensitize them to those antigens which produce incomplete antibodies such as Rh, Kell, and so forth. If such a recipient is Type O and is receiving Type O blood when a severe hemolytic reaction occurs, it is most probable that the donor's blood is not Type O because if the donor is truly Type O, the blood should go into anyone with only a minor mismatch; whereas if the recipient is truly Type O, any other type of donor blood produces an immediate major mismatch. If a similar recipient is Type AB and is receiving Type AB blood when a serious hemolytic reaction occurs, it is most likely that the recipient is incorrectly typed; because if he were Type AB, he should be able to receive blood from any ABO type; whereas if the recipient is not Type AB, there will be an immediate major mismatch against donor AB blood no matter what other type the recipient may be.

When a recipient has been found to be incorrectly typed, the possibility exists that the blood was taken from the wrong patient or that tubes of blood from two patients have been interchanged. In the first case the error is limited to the reaction under consideration, but in the second case it must be appreciated that blood has been

incorrectly matched for two patients and an immediate search must be made for the second with the hope of identifying him before the blood is given. When such an error occurs and one recipient has a reaction the other may not. As an example, consider two patients, one Type O and the other Type AB. If through error each receives blood meant for the other, Type O will have a major mismatch when he receives Type AB blood. The AB recipient will technically have a minor mismatch when he receives Type O blood but practically may experience no ill effect.

It is essential when treating a blood transfusion reaction to discontinue the blood that has produced the reaction and while checking on it, it is desirable to combat shock with transfusions of compatible blood. But this needs consideration. If a patient has been successfully transfused before so there is reasonably certainty as to blood type, a sudden severe reaction can be assumed to be due to some factor introduced from the donor blood ranging from wrong bottle with major mismatch to reaction due to blood group outside the ABO-Rh system, or anaphylaxis. However, if the reaction occurs when an individual is receiving his very first blood transfusion, considerable caution is necessary about starting any blood already available and cross-matched until the blood types have been rechecked and the cause of the reaction determined. The hazard would depend on the type of blood being given when the reaction occurred. If it was Type O, the chance that the reaction was due to special characteristics of that particular donor would be large and available blood already cross-matched and neutralized with specific anti A and anti B substances should be safe to use.

Donor Blood Type	Serum Antibodies	Cell Antigen	Type O	Mismatch If Given to		
				Type A	Type B	Type AB
Type O	Anti A Anti B	None	Compatible	Minor Major & Minor	Minor Compatible	Minor
Type B	Anti A	B	Major	Minor	Major & Minor	Minor
Type A	Anti B	A	Major	Compatible	Major	Minor
Type AB	None	AB	Major	Major	Major	Compatible

If Type AB blood was being given, it would be only to a Type AB recipient and these were for a long time regarded as universal recipients capable of taking blood from all ABO blood types. If a hemolytic reaction occurs, the possibility that it is due to a major mismatch is much, much greater, as it is most probable the recipient is incorrectly typed and is not AB, and until the recipient can be retyped and, if necessary, additional tests done to determine the cause of the reaction, then plasma expanders as a temporary device followed by washed Type O Rh negative red cells would be preferable. Samples of the recipient's blood should be taken before plasma expander is given, as the presence of this material in the blood may delay typing. If the need for red cells is urgent and only ordinary transfusion techniques are available, Type O Rh negative neutralized blood, preferably of predetermined low titer, should be employed to carry the patient along until compatible blood is available.

The nature of a reaction which has its onset during or after a blood transfusion and is characterized by some or all of the following signs and symptoms: chills, fever, shock, flushing of the face, chest pain, flank pain, abdominal cramps, headache, nausea and vomiting, cannot be accurately diagnosed by evaluation of the time of onset, duration, severity, location of pain or any combination of these. The primary requirement is to exclude the possibility of a hemolytic reaction before a definite diagnosis of a different type of reaction is made. This procedure does not preclude giving treatment for a possible pyrogenic or allergic reaction while the necessary investigation is being made because such treatment carries no hazard and there is no need to delay it. The reverse is not true and the attempt to make a definite diagnosis that a reaction is not hemolytic on the basis of clinical appearance alone may result in irreversible kidney damage if the diagnosis is wrong.

To make a definite diagnosis of a hemolytic transfusion reaction two criteria must be fulfilled. First, evidence showing that increased blood destruction has taken place

in the recipient, and second, demonstration of the cause for the increased blood destruction. The proof of increased blood destruction is the demonstration of increased free hemoglobin in the blood plasma or urine. Blood must be carefully drawn and handled to prevent hemolysis in needle, syringe or tube from impairing the accuracy of the test. Normally the free hemoglobin is less than 5 mg. per 100 cc and the plasma is pale yellow. At 25 mg. per 100 cc the plasma becomes faintly pink or brown and at 100 mg. per 100 cc the plasma is red.

This free hemoglobin will be excreted by the kidneys and if the blood level is sufficiently high the urine will be colored. Oxyhemoglobin may be converted to methemoglobin giving a brown color rather than red and a spectroscopic examination may be necessary to show hemoglobin is present. Increased free hemoglobin in blood plasma and urine is adequate proof of increased blood destruction and affords some clue to the severity of the reaction.

When signs of a hemolytic reaction appear late, free hemoglobin may have disappeared from the plasma, which is usually the case in 12 hours, and it may be necessary to search for methemoglobin in the recipient's blood either by spectroscopic or chemical means.

Three to six hours after the release of free hemoglobin into the blood there will be a rise in the serum bilirubin.

These tests will detect either early or late evidence of increased blood destruction. They are more satisfactory if a sample of donor blood and a pretransfusion sample of recipient blood is available, as this permits determination of the pretransfusion level of free hemoglobin and bilirubin in the recipient and allows examination of the donor blood to determine whether appreciable hemolysis was present due to age or accidental heating of the stored blood.

In addition, if such blood samples are available, it greatly simplifies the determination of the cause as the specimens can be retyped and retested for compatibility and proper identification verified.

Hemolytic transfusion reactions are extremely variable and unpredictable; a severe initial reaction may be followed by complete recovery and a mild initial reaction may be followed by death. For this reason all patients who have received transfusions should be closely observed and their urine examined for hemoglobinuria.

A severe hemolytic reaction produces shock with marked fall in blood pressure and vasoconstriction in the kidney. As a result, there is a decrease in blood flow through the kidney and the duration of this diminished blood flow will depend on the severity of the reaction. The ischemia exerts its most marked effect on the tubules and the pathological condition is called lower nephron nephrosis. To what degree the severity of tubular damage is influenced by the presence of hemoglobin from blood destruction, or myoglobin from damaged muscle in crush injuries, is debatable. The damage to the kidneys may be so severe as to be irreversible and a uremic death will occur regardless of treatment. This is a small percentage of cases. Many would recover and for many more recovery depends upon the treatment given during the period of kidney recovery. Excessive fluids and electrolytes during the early period of oliguria and anuria followed by inadequate fluids and electrolytes during the recovery period with its associated diuresis are the chief contributors with a failure to maintain adequate circulating red cells playing an assisting role.

During the period of anuria the loss of fluid and electrolytes and the excretion of nitrogenous end products is greatly reduced. The blood urea nitrogen will rise. Protein metabolism must be kept at a minimum by reducing the protein intake and employing a high carbohydrate diet. Infection increases the metabolism of body protein and should be controlled or prevented by antibiotics, bearing in mind that the elimination of such antibiotics may be seriously hindered by the damaged kidneys requiring consideration of the dosage of antibiotics employed. The serum potassium, chlorides, and sodium must be closely followed to avoid giving excessive amounts.

Bull advocated the use of the following preparation which is given through an indwelling polyethylene gastric tube by steady drip throughout the 24-hour period.

Dextrose 400 grams
Peanut oil 100 grams
Acacia qs to emulsify
Add water to make 1000 cc

This is practically protein and mineral free and is rather nauseating, which is the reason why tube feeding is essential. If the patient has anuria and does not vomit, this 1000 cc is his total daily input and just about equals the daily fluid loss by routes other than the kidney. If the patient vomits, the vomitus can be strained through gauze and fed back through the feeding tube. If the vomitus is scattered, an effort to appraise the quantity must be made and corresponding amount of fluids and, if necessary, electrolytes replaced. If marked fever with sweating is present, some additional fluid must be provided but the quantity must be carefully watched as long as anuria persists. Patients rarely die if given less than 2000 cc per day and the majority die if given more than 3500 cc during this phase. If this regime is persisted in, the anuria will usually relent and oliguria follows. In some cases the patient is oliguric but never anuric. In either event, if the patient is voiding, the volume must be measured and an equal volume of water added to the tube feeding, with electrolytes if indicated. When the anuria persists and uremia appears, additional steps are considered. Decapsulation of the kidney is no longer in favor but employment of the artificial kidney may be helpful. This is a debatable field. Patients are not comparable due to their varying underlying disease which necessitated transfusion and the different treatment employed. For those who claim good results with the use of the artificial kidney, it can be argued that their cases would have recovered anyhow; and for those who report no benefit, it can be maintained that their patients had irreversible kidney lesions. Exact solution is impossible but it is rational to feel an occasional case can be carried over to recovery by this means and it should certainly be tried on those patients who fail to improve.

Those patients who cannot take tube feedings must be given 1000 cc 10% dextrose in distilled water daily until tube feedings can be started. This can be increased by an amount equal to their daily urine output. This is not satisfactory but meets the most critical need for restricted fluid intake.

When the urine output exceeds 1000 cc per day, diuresis with excretion of large volumes of urine usually follows. This is a critical point in treatment because it may be felt that the battle is won, vigilance is relaxed, and death frequently occurs due to the rapid loss of fluid and electrolytes. If the patient can take oral feedings, a low protein diet can be started, but electrolyte loss may far exceed the content of the diet and parenteral or oral additions are essential. Only when the polyuria has disappeared, the blood urea nitrogen is normal, and blood electrolytes are maintained by normal diet without addition can the transfusion reaction be regarded as over.

The diagnosis of a transfusion reaction is not always simple. Major mismatches in the ABO system are most likely to produce the classical immediate reaction. When the reaction is the result of acquired incomplete antibodies or a very low titer of natural antibodies in the recipient's serum, it may

be delayed until more antibodies are produced. Hemoglobinemia or hemoglobinuria may not be detected either because they are not looked for at the right time or did not occur, in which case the clue to blood destruction will be the loss of the transfused red cells from the recipient's blood stream or in occasional cases the destruction of the recipient's red cells when the incompatible antibody is in the donor's plasma. The body can destroy red cells extravascularly as well as intravascularly and large numbers may be removed without the appearance of hemoglobinemia or hemoglobinuria.

A wide variety of unusual reactions have been reported which cannot be discussed in detail but they serve to make one point clear. The number of pints of blood transfused in a year in this country approaches the 5,000,000 mark if it has not already passed that figure. A rare reaction which was a scientific curiosity years ago is now a predictable fact. Whether or not it will happen depends on meticulous clerical and technical care in all matters pertaining to transfusions and to a small degree on luck. If it does happen, the outcome will depend on severity, quick recognition, skilled assistance in determining the nature of the incompatibility, and proper treatment.

+ Editorial +

THE FORAND BILL

In the waning days of the last congressional session, Representative Aime Forand (D-R.I.) introduced H.R. 9467, which has since become widely known as the Forand Bill. Mr. Forand's bill is another frank attempt to make government largesse of hospital and surgical service. As are most such bills, it was neatly timed to be heard during an election year.

Such bills, major or minor, have become far from infrequent. Arbitrarily, we can designate as major bills those which bear the official stamp of approval of the politically powerful labor organizations. H.R. 9467 is one of these. Mr. Forand frankly acknowledges the help of the AFL-CIO in writing the bill.

The provisions of the Forand bill are simple and to the point. They propose further liberalization of the Social Security system, and the additional taxes necessary to finance the extension of this governmental beneficence. Self-employment taxes for Social Security would increase to \$247.50 on January 1, 1959, and would rise progressively to \$427.50 by 1975. These figures, of course make the highly unlikely assumption that neither the tax base nor the percentage would be increased in the meantime.

In return for increased taxes Social Security old age and survivor beneficiaries would receive, in addition to increased pensions, free hospital care from any licensed hospital in the United States for sixty days of any year. In addition, care would be provided in a nursing home, for a maximum of 120 days of combined hospitalization and nursing home care in any year. Surgical service would be paid for by the government, provided that it is certified medically necessary, and that it is provided by a surgeon who is either a Fellow of the American College of Surgeons or certified by the American Board of Surgery. No physician not

recognized by one of these highly-respected organizations would be eligible to participate in the program, except under emergency conditions. Medical care by physicians is excluded from the proposal. Care would be arranged under contracts to be entered into between physicians and the Secretary of the Federal Old-Age, Survivors, and Disability Insurance Trust Fund. Presumably these contracts would be much like the present Medicare contract, except that individuals as well as organizations may be eligible to enter into them.

The value of Medicare and the threat that it poses to American medicine has been much debated. It does, however, differ from the proposed Forand Bill in that a Service person presumably sacrifices much in the interest of his country, and may justifiably be said to deserve special consideration. The Forand Bill does not make such distinctions. To be eligible for nationalized surgical and hospital care, an individual need only have reached the age of 62 or 65, under different conditions, and have paid minimal Social Security taxes. Thus, governmental paternalism is extended without regard to need or to society's debt to the recipient.

Historically, the Forand Bill takes its place as the latest of a long series designed to introduce nationalized medicine in America through the medium of OASDI — The Old-Age, Survivors, and Disability Insurance Fund. For the inclusion of "Disability" we are indebted to H.R. 7225, the Social Security Amendments of 1956 — the last election year.

The use of the Social Security Amendments for this purpose began after the defeat of the last of the Wagner-Murray-Dingell Bills. The American Medical Association's campaign against these bills made the words "socialized medicine" po-

litical anathema. It has become more popular to distort the Social Security Act, originally intended to provide minimal security for those persons unable to provide it for themselves, than to introduce new legislation which may be attacked on its own merits, with less chance of being accused of attacking Santa Claus.

As the final Wagner-Murray-Dingell Bill went down to defeat, its supporters frankly prophesied that, even though their attempt to force the entire package down the throats of the medical profession had been defeated, they would, in comparatively short time, secure each of the provisions under separate legislation. Certainly Mr. Forand's bill is an attempt to further this already highly successful movement.

Organized medicine, with the exception of the allegedly Communist-front Physicians' Forum, has been unanimous in recognizing the Forand Bill as bad legislation. Dr. George Fister of Utah, Chairman of the AMA's Special Task Force on the bill, says that it is "nothing more than the old national compulsory health insurance game in new dress, and the AMA has always been opposed to compulsory health insurance".

The American Hospital Association, despite its urgent search for solutions to the problems of hospital finance, has announced that "it believes that the Forand Bill is not a suitable solution to the problem of financing the hospital needs of the aged". The Association explained its stand, in part, by maintaining: "Eligibility of aged benefici-

aries is based on attainment of prescribed ages without regard to their employment status and thus invites a progressive reduction of these age levels with the ultimate possibility of a total program of government-financed medical care". This stand on the part of the American Hospital Association is commendable, and its importance in the over-all position of the Forand Bill cannot be overestimated. Nevertheless, it cannot be expected to stand alone against the approval (and assistance in drafting) of organized labor.

Mr. Eisenhower's January message to the Congress was significant in that for the first time in many years the President did not urge further increases in existing welfare programs. The present pre-occupation in Washington with science and defense makes it possible that political pressure for the passage of the Forand Bill may not develop to a point comparable with that developed for H.R. 7225 in 1956. It is possible, therefore, that H.R. 9467 can be kept in the House of Representatives. The battle is, of course, half lost if the House should pass the Bill.

Copies of the Forand Bill may be had from the office of the Medical Society of Delaware. You are urged to familiarize yourselves with the provisions of this bill, and to let our Representative in Congress, Mr. Harry G. Haskell, Jr., know of your feelings. Mr. Haskell's address is: Representative Harry G. Haskell, Jr. House of Representatives Office Bldg. Washington 25, D. C.

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1. Pitt, M. B.: Leukorrhea. Causes and Management, J. M. A. Alabama 25:182 (Feb.) 1956.

2. Parker, R. T.; Jones, C. P., and Thomas, W. L.: Pruritus Vulvae, North Carolina M. J. 16:570 (Dec.) 1955.

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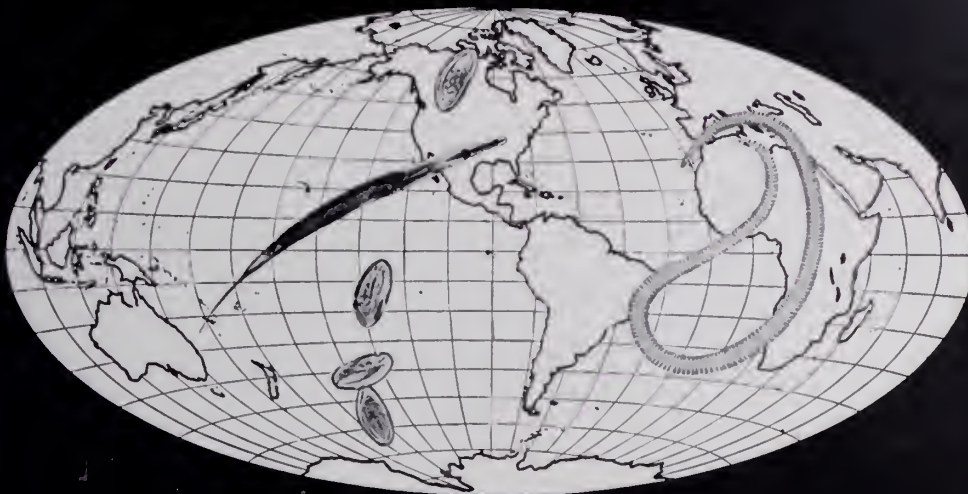


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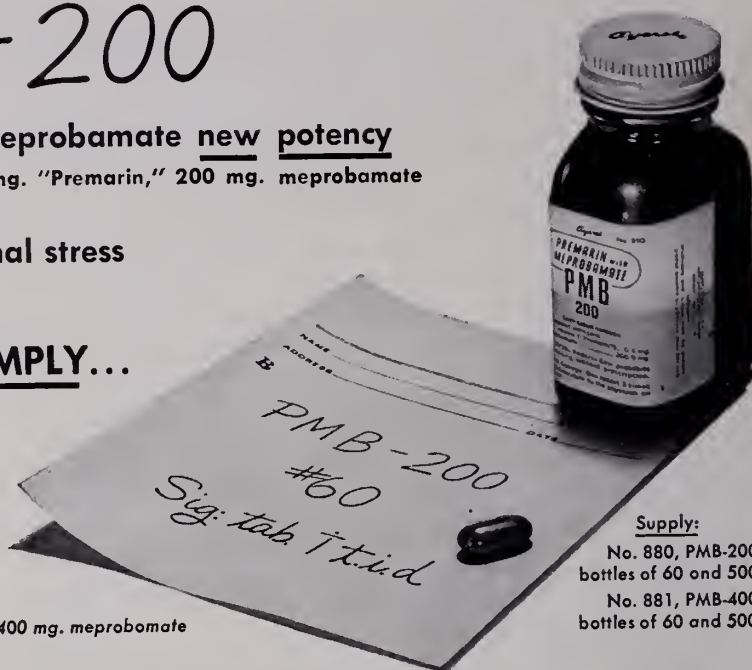
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No. 881, PMB-400
bottles of 60 and 500.

AYERST LABORATORIES

New York 16, New York

Montreal, Canada

"Premarin®" conjugated estragens (equine)

Meproamate licensed under U.S. Pat. No. 2,724,720



5830

NEW

"flavor-timed" dual-action

CORONARY VASODILATOR

Dilcoron

TRADEMARK

ORAL (tablet swallowed whole)
for dependable prophylaxis

SUBLINGUAL-ORAL
*for immediate and
sustained relief*

of **ANGINA PECTORIS**



NITROGLYCERIN—
0.4 mg. (1/150 grain)—acts quickly

CITRUS "FLAVOR-TIMER"—
signals patient when to swallow

PENTAERYTHRITOL TETRANITRATE—
15 mg. (1/4 grain)—prolongs action

For continuing prophylaxis patient swallows
the entire Dilcoron tablet.

Average prophylactic dose:
1 tablet four times daily.

Therapeutic dose:
1 tablet held under the tongue until citrus
flavor disappears, then swallowed.

Bottles of 100

Winthrop LABORATORIES NEW YORK 18, N. Y.



STOP respiratory congestion orally

relief in minutes . . lasts for hours

In the common cold, nasal allergies, sinusitis, and postnasal drip, one timed-release Triaminic tablet brings welcome relief of symptoms *in minutes*. Running noses stop, clogged noses open—and *stay* open for 6 to 8 hours. The patient can breathe again.

With *topical* decongestants, "unfortunately, the period of decongestion is often followed by a phase of secondary reaction during which the congestion may be equal to, if not greater than, the original condition. . . ." The patient then must reapply the medication and the vicious cycle is repeated, resulting in local overtreatment, pathological changes in nasal mucosa, and frequently "nose drop addiction."

Triaminic does not cause secondary congestion, eliminates local overtreatment and consequent nasal pathology.

*Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

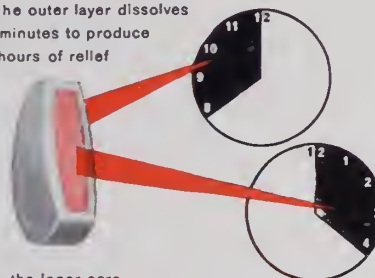
Each double-dose "timed-release" TRIAMINIC Tablet contains:

Phenylpropanolamine hydrochloride 50 mg.
 Pyrilamine maleate 25 mg.
 Pheniramine maleate 25 mg.

Dosage: 1 tablet in the morning, afternoon, and in the evening if needed.

Each double-dose "timed-release" tablet keeps nasal passages clear for 6 to 8 hours—provides "around-the-clock" freedom from congestion on just three tablets a day

first—the outer layer dissolves within minutes to produce 3 to 4 hours of relief



then—the inner core disintegrates to give 3 to 4 more hours of relief

Also available: Triaminic Syrup, for children and those adults who prefer a liquid medication.

Triaminic[®] "timed-release" tablets

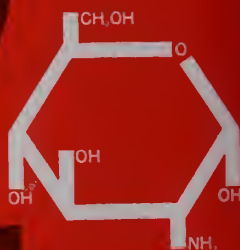


running noses . . .   and open stuffed noses orally

Three advantages of glucosamine-potentiated tetracycline:

Highest, fastest tetracycline blood levels, with glucosamine enhancement. A screening program involving 84 possible adjuvants, multiple four-way crossover tests, 30,000 blood level determinations and more than 100,000 assays proved glucosamine to be the enhancing agent of choice.

Greatest consistency of higher tetracycline blood levels. Not only does glucosamine considerably increase antibiotic blood levels faster, but it produces these higher blood levels more consistently as shown by extensive crossover tests.



Achieved with the physiologic advantages of glucosamine, a normal human metabolite. Glucosamine, found widely in the body, is nontoxic and does not irritate the gastrointestinal tract; there is evidence that glucosamine may favorably influence the bacterial flora of the intestine. Further, it is sodium free and releases only four calories of energy per gram.

in new
well-tolerated

COSA-TETRACYN

GLUCOSAMINE-POTENTIATED TETRACYCLINE

*Capsules, 250 mg., 125 mg.
Half strength (125 mg. capsules) for long-term indications or pediatric use*



*Trademark

Pfizer Laboratories, Division, Chas. Pfizer & Co., Inc., Brooklyn 6, N.Y.



*they want
Rome up
by quitting
time...*

To cut daytime lethargy
(and keep rauwolfia potency)
in treatment of hypertension:

Mounting clinical evidence confirms the view that HARMONYL produces much less lethargy while reducing blood pressure effectively. In the most recent study¹, HARMONYL was evaluated in comparison with reserpine and other rauwolfia alkaloids. HARMONYL was the only alkaloid which produced a hypotensive response closely matching that of reserpine, coupled with a greatly reduced rate of lethargy. Only one HARMONYL patient in 20 showed lethargy, while an average of 11 out of 20 showed lethargy with reserpine, and 10 out of 20 with the alseroxylon fraction. **Abbott**

802077

for your hypertensives who must stay on the job

Harmonyl*

(DESERPIDINE, ABBOTT)

while the drug works effectively . . . so does the patient

1. Comparative Effects of Various Rauwolfia Alkaloids in Hypertension; Diseases of the Chest, in press.

*TRADE MARK



NO WAITING

for

a

cumulative

response to

reserpine alone

in anxiety and hypertension

NEW *fast-acting*

filmtab[®]

Harmonyl-N^{*}

(Harmonyl[®] and Nembutal[®])

Calmer days, more restful nights starting *first* day of treatment, through synergistic action of HARMONYL (Deserpidine, Abbott) and NEMBUTAL (Pentobarbital, Abbott). Lower therapeutic doses, lower incidence of side effects. Each HARMONYL-N Filmtab contains 30 mg. NEMBUTAL Calcium and 0.25 mg. HARMONYL. Each HARMONYL-N *Half-Strength* Filmtab combines 15 mg. NEMBUTAL Calcium and 0.1 mg. HARMONYL. **Abbott**



PROTECTION AGAINST LOSS OF INCOME FROM ACCIDENT & SICKNESS AS WELL AS HOSPITAL EXPENSES. BENEFITS FOR YOU AND ALL YOUR ELIGIBLE DEPENDENTS.

ALL
PREMIUMS
COME FROM

PHYSICIANS
SURGEONS
DENTISTS

ALL
BENEFITS
GO TO

PHYSICIANS CASUALTY & HEALTH ASSOCIATIONS

OMAHA 31, NEBRASKA

Since 1902

Physicians' and Surgeons' PROFESSIONAL Liability Insurance

Provides Complete Malpractice Protection, Avoids Unpleasant Situations By Immediate Thorough Investigation And Saves You The High Costs Of Litigation.

The Only Plan Which Is Officially Sponsored By Your Local Medical Society

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87 Years of Dependable Service

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TAKE A NEW LOOK AT ALLERGENS* TAKE A LOOK AT NEW DIMETANE

There is no antihistamine better than DIMETANE for allergic protection. DIMETANE gives you good reasons to re-examine the antihistamine you are now using: unexcelled potency, unsurpassed therapeutic index and relative safety...minimum drowsiness or other side effects. Has been effective where other antihistamines have failed. DIMETANE Extentabs® (12 mg.) protect for 10-12 hours on one tablet. Also available: Tablets (4 mg.), Elixir (2 mg. per 5 cc.).

A. H. ROBINS CO., INC., Richmond 20, Virginia
Ethical Pharmaceuticals of Merit Since 1878

*Typical Allergens: Animal Hair and Dander • Pollen • Molds • Bacteria and Viruses • Feathers • Insect Scales • Vegetable Fibers and Seeds
Plant Juices • House Dust • Drugs and Chemicals • Minerals and Metals.



Dimetane[®]
(PARABROMDYLAMINE MALEATE)

**PERFORMANCE WITH
GREATER PERMANENCE
IN THE MANAGEMENT
OF DERMATOSES...**
(Regardless of Previous Refractoriness)
**Confirmed by
an impressive and
growing body of published
clinical investigations**

TARCORTIN® CREAM
Hydrocortisone 0.5% and Special Coal Tar Extract 5%
(TARBONIS®) in a greaseless, stainless vanishing cream base.

NEO-TARCORTIN® OINTMENT
Hydrocortisone 0.5%, Neomycin 0.35% (as Sulfate) and Special
Coal Tar Extract 5% (TARBONIS®) in an ointment base.

ATOPIC DERMATITIS • ECZEMAS • SEBORRHEA • ANOGENITAL PRURITUS • DERMATITIS VENERATA • PSORIASIS

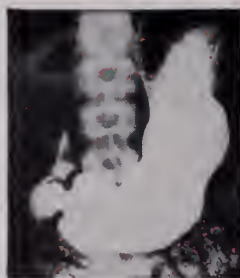
* J. A. M. A. 166:158, 1958; Welsh, A. L. and Ede, M.
"... prompt remissions of ... acute phases."
with TARCORTIN

* 1. Clyman, S. G.: Postgrad. Med. 21:309, 1957.
2. Bleiberg, J.: J. M. Soc. New Jersey 53:37, 1956.
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4. Welsh, A. L., and Ede, M.: Ohio State M. J. 50:837, 1954.
5. Bleiberg, J.: Am. Practitioner 3:1404, 1957.

R&C REED & CARNRICK / Jersey City 6, New Jersey

when anxiety and tension "erupts" in the G. I. tract...

IN DUODENAL ULCER



PATHIBAMATE*

Meprobamate with PATHILON® Lederle

Combines Meprobamate (400 mg.) the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of duodenal ulcer — without fear of barbiturate loginess, hangover or habituation . . . *with PATHILON (25 mg.)* the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

Dosage: 1 tablet t.i.d. at mealtime. 2 tablets at bedtime.

Supplied: Bottles of 100, 1,000.



*Trademark

® Registered Trademark for Triidihexethyl Iodide Lederle

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

there is one tranquilizer clearly indicated in peptic ulcer...



does
not
increase...

ATARAX

(BRAND OF HYDROXYZINE)

actually
lowers
gastric
secretion



*Tests in a series of 25 patients show that there is "a definite and distinct lowering [of both volume of secretions and of free hydrochloric acid] in the majority of patients. . . . No patients had shown any increase in gastric secretions following administration of the drug."¹

Now you have 4 advantages when you calm ulcer patients with ATARAX:

1. ATARAX suppresses gastric secretions; others commonly increase acidity.
2. ATARAX is "the safest of the mild tranquilizers."² (No parkinsonian effect or blood dyscrasias ever reported.)
3. It is effective in 9 of every 10 tense and anxious patients.
4. Five dosage forms give you maximum flexibility.

supplied: 10, 25 and 100 mg. tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.

references: 1. Strub, I. H.: Personal communication. 2. Ayd, F. J., Jr.: presented at Ohio Assembly of General Practice, 7th Annual Scientific Assembly, Columbus, September 18-19, 1957.



New York 17, New York
Division, Chas. Pfizer & Co., Inc.

If
Monilial overgrowth
is a factor

Achrostatin^{*} V

TETRACYCLINE (PHOSPHATE-BUFFERED) AND NYSTATIN

Combines ACHROMYCIN V with NYSTATIN

SUPPLIED:

CAPSULES contain 250 mg. tetracycline HCl equivalent (phosphate-buffered) and 250,000 units Nystatin. ORAL SUSPENSION (cherry-mint flavored) Each 5 cc. teaspoonful contains 125 mg. tetracycline HCl equivalent (phosphate-buffered) and 125,000 units Nystatin.

DOSAGE:

Basic oral dosage (6-7 mg. per lb. body weight per day) in the average adult is 4 capsules or 8 tsp. of ACHROSTATIN V per day, equivalent to 1 Gm. of ACHROMYCIN V.

ACHROSTATIN V combines ACHROMYCIN[†] V ... the new rapid-acting oral form of ACHROMYCIN[†] Tetracycline ... noted for its outstanding effectiveness against more than 50 different infections ... and NYSTATIN ... the antifungal specific. ACHROSTATIN V provides particularly effective therapy for those patients prone to monilial overgrowth during a protracted course of antibiotic treatment.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, N. Y.
*Trademark †Reg. U. S. Pat. Off.

 Lederle

MY DAD— HE HURT HIS BACK REAL BAD

"It happened
at work
while he
was putting
oil in
something"

"He told
Mom his
shoulder
felt like
it was on
fire"

"He couldn't
swing a bat
without
hurting"

"But Doctor
gave him
some nice
pills--and
the pain
went away
fast"

"Dad said
we'd play
ball again
tomorrow
when he
comes home"



AND THE PAIN WENT AWAY FAST

FOR PAIN Percodan®

(Salts of Dihydrohydroxycodeinone
and Homatropine, plus APC)

TABLETS

ACTS FASTER...
usually within 5-15 minutes

LASTS LONGER...
usually for 6 hours or more

MORE THOROUGH RELIEF...
permits uninterrupted sleep through the night

RARELY CONSTIPATES...
excellent for chronic or bedridden patients

and now... **NEW** Percodan- Demi

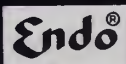
VERSATILE

New "demi" strength permits dosage flexibility to meet each patient's specific needs. PERCODAN-DEMI provides the PERCODAN formula with one-half the amount of salts of dihydrohydroxycodeinone and homatropine.

AVERAGE ADULT DOSE: 1 tablet every 6 hours. May be habit-forming. Available through all pharmacies.

Each PERCODAN® Tablet contains 4.50 mg. dihydrohydroxycodeinone hydrochloride, 0.38 mg. dihydrohydroxycodeinone terephthalate, 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. phenacetin, and 32 mg. caffeine.

Literature? Write



ENDO LABORATORIES
Richmond Hill 18, New York

Hospital practice of infant feeding

Standard formulas for PREMATURES

Breast milk is satisfactory for the feeding of prematures in spite of the low protein and mineral and high fat content. But eventual formula feeding should provide a high protein and carbohydrate to satisfy the rapid-growing needs of the premature and low fat content because of limited digestive capacity.

Feedings of small prematures are most effectively administered by the indwelling polythene nasal catheter and of large prematures, by bottle with small nipples.

The first six feedings should be a sterile 5% solution of Karo Syrup at 2 to 3 hour intervals; for subsequent feedings, breast milk or formula should be added in gradually increasing amounts according to tolerance and requirements, as indicated in the table below.

Initial feeding schedules

for premature infants

(Feedings Started After 36 Hours and Continued at 2 to 3 Hour Intervals)

FEEDINGS	COMPOSITION	QUANTITY
First Six	5% Karo	2-5 ml.
7th and 8th	2 parts 5% Karo 1 part breast milk or formula	6-10 ml.
9th and 10th	1 part 5% Karo 1 part breast milk or formula	8-15 ml.
11th and 12th	1 part 5% Karo 2 parts breast milk or formula	10-18 ml.
Subsequently	Breast or formula feeding	12-20 ml.

ADVANTAGES OF KARO® IN INFANT FEEDING

Composition: Karo is a superior maltose-dextrin mixture because the dextrans are non-fermentable and the maltose is rapidly transformed into dextrose which requires no further digestion.

Concentration: Volume for volume Karo furnishes twice as many calories as similar milk modifiers in powdered form.

Purity: Karo is processed at sterilizing temperatures, sealed for complete hygienic protection and devoid of pathogenic organisms.

Low Cost: Karo costs 1/5th as much as expensive milk modifiers and is available at all food stores.



Medical Division
CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York 4, N. Y.



ACHROCIDIN

TETRACYCLINE-ANTIHISTAMINE-ANALGESIC COMPOUND LEDERLE

A versatile, well-balanced formula offering in one tablet the drugs often prescribed separately for treating upper respiratory infections.

Traditional and nonspecific nasopharyngeal symptoms of malaise and chilly sensations are rapidly relieved, and headache, muscular pain, and pharyngeal and nasal discharges are reduced or eliminated.

Early effective therapy is provided against such bacterial complications as sinusitis, otitis, bronchitis and pneumonitis to which the patient may be highly vulnerable at this time.

Adult dosage for ACHROCIDIN Tablets and new, caffeine-free ACHROCIDIN Syrup is two tablets or teaspoonfuls of syrup three or four times daily. Dosage for children reduced according to weight and age.

Available on prescription only.

TABLETS (Sugar-coated)

Each tablet contains:

ACHROMYCIN® Tetracycline	125 mg.
Phenacetin	120 mg.
Caffeine	30 mg.
Salicylamide	150 mg.
Chlorothen Citrate	25 mg.

Bottles of 24 and 100

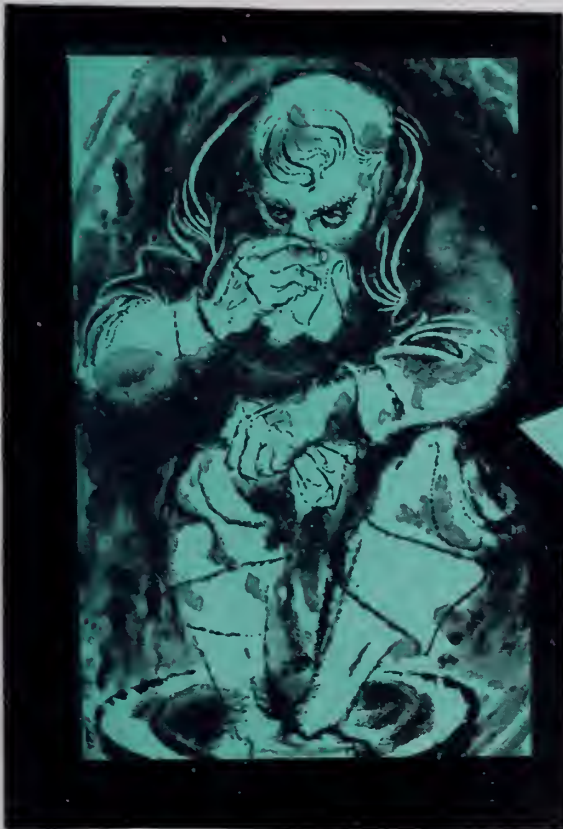
SYRUP (Lemon-lime flavored)

Each teaspoonful (5 cc.) contains:

ACHROMYCIN® Tetracycline	
equivalent to tetracycline HCl	125 mg.
Phenacetin	120 mg.
Salicylamide	150 mg.
Ascorbic Acid (C)	25 mg.
Pyrimine Maleate	15 mg.
Methylparaben	4 mg.
Propylparaben	1 mg.

Bottle of 4 oz.

*checks
symptoms*



- adenitis
- sinusitis
- otitis
- bronchitis
- pneumonitis

*prevents
sequelae*



"Since we've had him on NEOHYDRIN he can walk without dyspnea. I wouldn't have believed it possible a month ago."

oral
organomercurial
diuretic

TABLET

NEOHYDRIN[®]

BRAND OF CHLORMERODRIN

 LAKESIDE

THE FIRST TROCHE TO PROVIDE
THREEFOLD BENEFITS

PENTAZETS

TROCHES

NON-NARCOTIC ANTITUSSIVE EFFICACY
SHOWN TO APPROXIMATE THAT OF **CODEINE**



AND **NOW** COUGH CONTROL TOO

With the addition of a non-narcotic antitussive to troche medication, 'PENTAZETS' provides a new and extended therapeutic advantage in this convenient form of treatment.

Treatment of the cough too, so often a troublesome symptom of sore throat, combined with wide-range antibiotic activity and soothing analgesic benefit, now offers *threefold* relief in a variety of throat irritations.

And 'PENTAZETS' are pleasant-tasting, too, making them highly acceptable, especially to children.

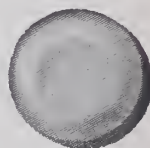
'PENTAZETS' contains:

• *Homarylamine*—a new non-narcotic antitussive with cough control shown to approximate that of codeine. • *Bacitracin-Tyrothricin-Neomycin*—a combined antibiotic treatment against many pathogenic organisms with little danger of unfavorable side effects. • *Benzocaine*—a local anesthetic for soothing relief to inflamed tissues. Being slowly absorbed, it is especially beneficial for prolonged effect and benefit to surrounding areas.

Supplied: Vials of 12.

Each '**PENTAZETS**' troche contains:

Homarylamine hydrochloride	20 mg.
Zinc Bacitracin	50 units
Tyrothricin	1 mg.
Neomycin sulfate	5 mg.
(equivalent to 3.5 mg. neomycin base)	
Benzocaine	5 mg.



MERCK SHARP & DOHME

DIVISION OF MERCK & CO., Inc., PHILADELPHIA 1, PA.

Therapeutic Nutrition in Chronic Disease

Meat...

and Protein Nutrition in Vascular Disease

Whether the eventual solution of the problem of atherogenesis will come out of the field of dietetics, biophysics, or pharmacology, one fact remains undeniable:

Adequate protein nutrition is considered of importance for the age group most commonly affected by disease of the vascular system, so that the demands of good nutritional health might be met.

Meat is outstanding among protein foods. It supplies all the essential amino acids, and closely approaches the quantitative proportions needed for biosynthesis of human tissue.

In addition, it is an excellent source of B vitamins, including B₆ and B₁₂, as well as iron, phosphorus, potassium, and magnesium.

When curtailment of fat intake is deemed indicated, meat need not always be denied the patient. Visible fat obviously should not be eaten. But the contained percentage of invisible (interstitial) fat is well within the limits of reasonable fat allowance.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago...Members Throughout the United States

a new high in
anti-inflammatory effects
with lower dosage
(averages $1/3$ less than
prednisone)

The
Achievements
of

Aristocort[®]

Triamcinolone LEDERLE

a new low in the collateral
hormonal effects associated
with all previous corticosteroids

- ◆ No sodium or water retention
- ◆ No potassium loss
- ◆ No interference with psychic equilibrium
- ◆ Low incidence of peptic ulcer and osteoporosis

Aristocort is available in 2 mg. scored tablets (pink), bottles of 30; and 4 mg. scored tablets (white), bottles of 30 and 100.



The Achievement in Skin Diseases: In a study of 26 patients with severe dermatoses, ARISTOCORT was proved to have potent anti-inflammatory and antipruritic properties, even at a dosage only $\frac{2}{3}$ that of prednisone.¹ . . . Striking affinity for skin and tremendous potency in controlling skin disease, including 50 cases of psoriasis, of which over 60% were reported as *markedly improved*². . . absence of serious side effects specifically noted.^{1,2,3}

The Achievement in Rheumatoid Arthritis: Impressive therapeutic effect in most cases of a group of 89 patients⁴. . . 6 mg. of ARISTOCORT corresponded in effect to 10 mg. of prednisone daily (in addition, gastric ulcer which developed during prednisone therapy in 2 cases disappeared during ARISTOCORT therapy).⁵

Arist

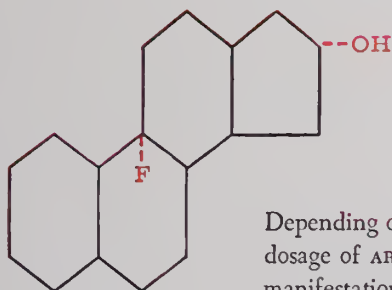
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11. Segal, M. S.: Personal Communication.
12. Cooke, R. A.: Personal Communication.
13. Dubois, E. L.: Personal Communication.

The Achievement in Respiratory Allergies: "Good to excellent" results in 29 of 30 patients with chronic intractable bronchial asthma at an average daily dosage of only 7 mg.⁶ . . . Average dosage of 6 mg. daily to control asthma and 2 to 6 mg. to control allergic rhinitis in a group of 42 patients, with an actual reduction of blood pressure in 12 of these.⁷

The Achievement in Other Conditions: Two failures, 4 partial remissions and 8 cases with complete disappearance of abnormal chemical findings lead to characterization of ARISTOCORT as possibly the most desirable steroid to date in treatment of the nephrotic syndrome.^{8,9} . . . Prompt decrease in the cyanosis and dyspnea of pulmonary emphysema and fibrosis, with marked improvement in patients refractory to prednisone.^{10,11,12} . . . Favorable response reported for 25 of 28 cases of disseminated lupus erythematosus.¹³

ARISTOCORT®

Triamcinolone LEDERLE



Depending on the acuteness and severity of the disease under therapy, the initial dosage of ARISTOCORT is usually from 8 to 20 mg. daily. When acute manifestations have subsided, maintenance dosage is arrived at gradually, usually by reducing the total daily dosage 2 mg. every 3 days until the smallest dosage has been reached which will suppress symptoms.

Comparative studies of patients changed to ARISTOCORT from prednisone indicate a dosage of ARISTOCORT lower by about $\frac{1}{3}$ in rheumatoid arthritis, by $\frac{1}{3}$ in allergic rhinitis and bronchial asthma, and by $\frac{1}{3}$ to $\frac{1}{2}$ in inflammatory and allergic skin diseases. With ARISTOCORT, no precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

ARISTOCORT is available in 2 mg. scored tablets (pink), bottles of 30; and 4 mg. scored tablets (white), bottles of 30 and 100.

'DIURIL'

(CHLOROTHIAZIDE)

in

EDEMA



Start therapy with one or two 500 mg. tablets of 'DIURIL' once or twice a day.

BENEFITS:

- The only orally effective nonmercurial agent with diuretic activity equivalent to that of the parenteral mercurials.
- Excellent for initiating diuresis and maintaining the edema-free state for prolonged periods.
- Promotes balanced excretion of sodium and chloride—without acidosis.

Any indication for diuresis is an indication for 'DIURIL':

Congestive heart failure of all degrees of severity; premenstrual syndrome (edema); edema and toxemia of pregnancy; renal edema—nephrosis; nephritis; cirrhosis with ascites; drug-induced edema. May be of value to relieve fluid retention complicating obesity.

SUPPLIED: 250 mg. and 500 mg. scored tablets 'DIURIL' (chlorothiazide); bottles of 100 and 1,000.

'DIURIL' and 'INVERSINE' are trade-marks of Merck & Co., Inc.



MERCK SHARP & DOHME

Division of MERCK & CO., Inc., Philadelphia 1, Pa.

as simple
as *1-2-3*
in

HYPERTENSION

1 INITIATE 'DIURIL' THERAPY

'DIURIL' is given in a dosage range of from 250 mg. twice a day to 500 mg. three times a day.

2 ADJUST DOSAGE OF OTHER AGENTS

The dosage of other antihypertensive medication (reserpine, hydralazine, etc.) is adjusted as indicated by patient response. If the patient is established on a ganglionic blocking agent (e.g., 'INVERSINE') this should be continued, but the total daily dose should be *immediately* reduced by 25 to 50 per cent. This will reduce the serious side effects often observed with ganglionic blockade.

3 ADJUST DOSAGE OF ALL MEDICATION

The patient must be frequently observed and careful adjustment of all agents should be made to determine optimal maintenance dosage.

BENEFITS:

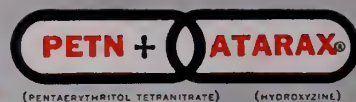
- improves and simplifies the management of hypertension
- markedly enhances the effects of antihypertensive agents
- reduces dosage requirements for other antihypertensive agents—often below the level of distressing side effects
- smooths out blood pressure fluctuations

INDICATIONS: management of hypertension

Smooth, more trouble-free management of hypertension with 'DIURIL'



new for angina



CARTRAX*

links
freedom from
anginal attacks

with a shelter of
tranquility

In pain. Anxious. Fearful. On the road to cardiac invalidism. These are the pathways of angina patients. For fear and pain are inexorably linked in the angina syndrome.

For angina patients—perhaps the next one who enters your office—won't you consider new CARTRAX? This doubly effective therapy combines PETN (pentaerythritol tetranitrate) for lasting vasodilation and ATARAX for peace of mind. Thus CARTRAX relieves not only the anginal pain but reduces the concomitant anxiety.

Dosage and supplied: begin with 1 to 2 yellow CARTRAX "10" tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. When indicated, this may be increased for more optimal effect by switching to pink CARTRAX "20" tablets (20 mg. PETN plus 10 mg. ATARAX.) For convenience, write "CARTRAX 10" or "CARTRAX 20." In bottles of 100. CARTRAX should be taken 30 to 60 minutes before meals, on a continuous dosage schedule. Use PETN preparations with caution in glaucoma.

*"Cardiac patients who show significant manifestations of anxiety should receive ataractic treatment as part of the therapeutic approach to the cardiac problem."*¹



New York 17, New York
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1. Waldman, S., and Pelner, L.: Am. Pract. & Digest Treat. 3:1075 (July) 1957.
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Reference: 1. J.A.M.A. 158:386 (June 4) 1955.

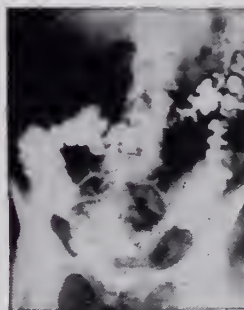
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References: 1. Spies, T. D., et al.: J.A.M.A. 159:645, 1955. 2. Spies, T. D., et al.: Postgrad. Med. 17:1, 1955. 3. Gelli, G., and Della Santa, L.: Minerva Pediat. 7:1456, 1955. 4. Guerra, F.: Fed. Proc. 12:326, 1953. 5. Busse, E. A.: Clin. Med. 2:1105, 1955. 6. Sticker, R. B.: Panel Discussion, Ohio State M. J. 52:1037, 1956.

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Source—Hyman, M.: Some Aspects of Psychiatry in General Practice, GP 16:83 (Oct.) 1957.

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Official Organ of the Medical Society of Delaware

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VOLUME 30

APRIL, 1958

NUMBER 4

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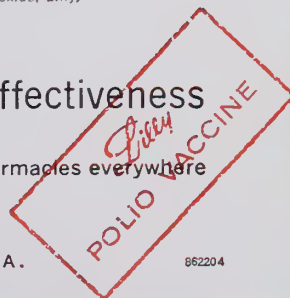
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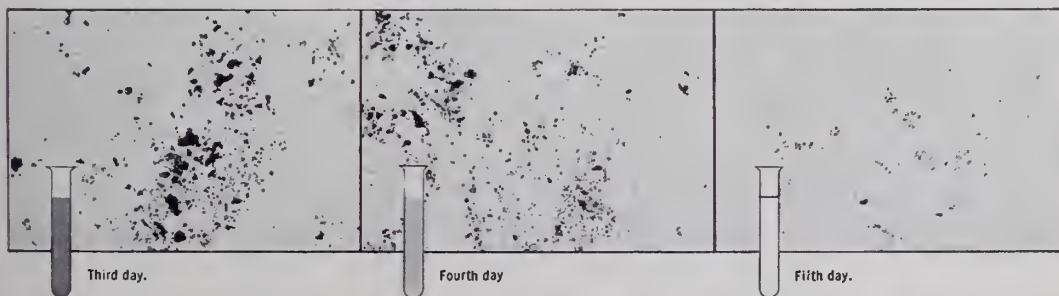
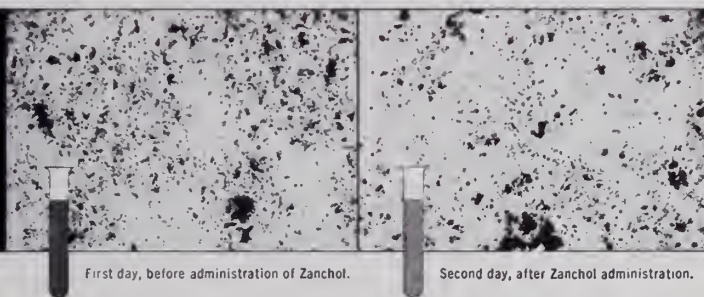
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1. McGowan, J. M.: Clinical Significance of Changes in Common Duct Bile Resulting from a New Synthetic Choleric, Surg., Gynec. & Obst. 103:163 (Aug.) 1956.

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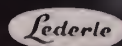
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before PATHIBAMATE



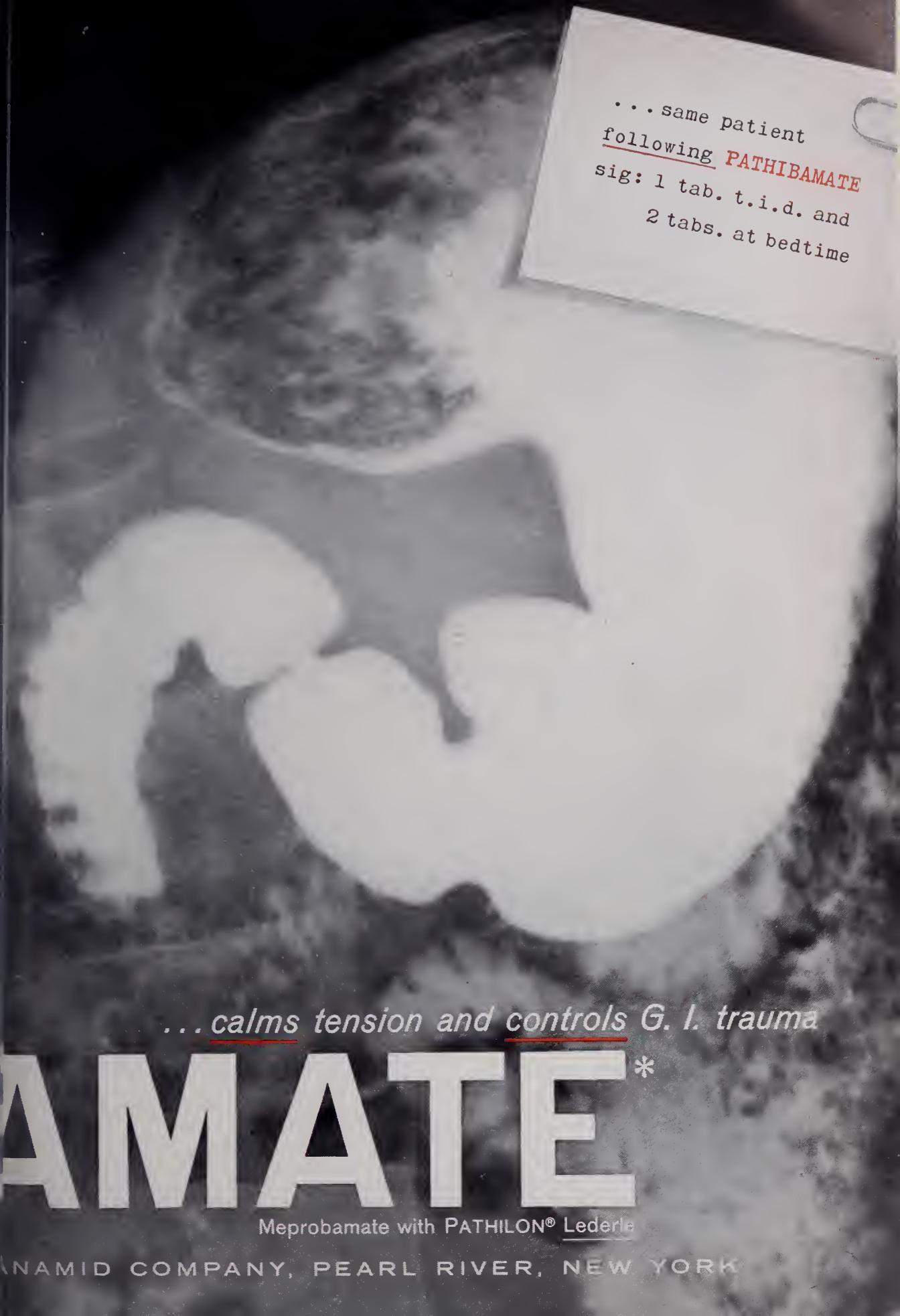
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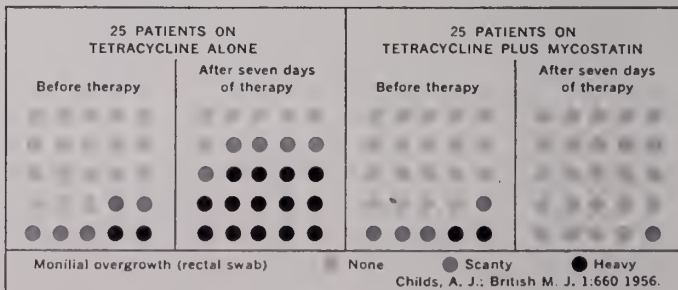
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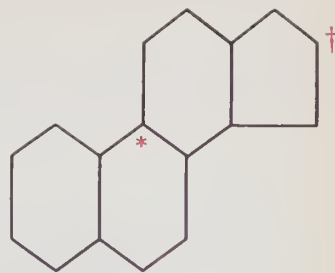


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Biological Effects of Aristocort

with
particular emphasis
on:

Kidney function

Animal studies on ARISTOCORT¹ have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.¹ Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.² Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.³ Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.^{4,5} In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.^{6,7}

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.¹ Potassium balance studies in humans^{2,3} revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.^{6,7}

Calcium and phosphorus

Phosphate excretion in animals¹ was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies³ demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.³ At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.^{2,3}

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.⁸



Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.¹

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet¹ and cottonball⁹ tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.¹⁰ Clinical studies¹¹ of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.¹² The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

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The Promise of Aristocort

in Reduction of Side Effects

◊ It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are reported below.

Peptic Ulcer

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case¹). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,² and toxic syndromes producing even convulsions and death.³

Since the onset of these complications is not directly related to duration of steroid administration,⁴ the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.⁵ Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.^{1,6}

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.^{7,8} Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.¹ These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, light-headedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,⁹ 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),⁵ and in inflammatory and allergic skin diseases (33-50 per cent).^{10,11}

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in lower incidence of major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort[®]

in Rheumatoid Arthritis

ARISTOCORT therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.

Significant is the fact that most patients were severe arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates¹ treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of ARISTOCORT sufficient to control arthritic symptoms.*

Hartung² treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Respiratory Allergies

◊ About 200 patients with respiratory allergies have been treated with ARISTOCORT for continuous periods up to eight months.

Results of treatment

Sherwood and Cooke^{1,2} gave ARISTOCORT to 42 patients with bronchial asthma and allergic rhinitis. Average dose needed to control the asthmatic group was approximately 6 mg. per day (range, 2 to 14 mg.). Results, which were called "good to excellent" in all but four, were achieved on one-third less than similarly effective doses of prednisone or prednisolone.

The investigators noted other major improvements in ARISTOCORT therapy over the older steroids. There was no increase in blood pressure in any patient: *on the contrary, in 12 patients, there was reduction of pressure when they were transferred to ARISTOCORT.* One patient had required auxiliary antihypertensive drug therapy; over a nine-week period on ARISTOCORT, the pressure gradually fell from 206/100 to 136/79. In another case, the pressure slowly dropped from 205/105 to 154/86.

The number of cases in which these investigators tried ARISTOCORT in allergic rhinitis was not large enough to provide significant averages. However, the range of effective therapy was from 2 to 6 mg. per day. These strikingly low daily doses resulted in control of all signs and symptoms.

Schwartz³ treated 30 patients with chronic, intractable bronchial asthma. At an average daily dose of 7 mg., he reported "good to excellent" results in all but one. Spies,⁴ Barach⁵ and Segal,⁶ reported similar results at average daily maintenance doses of 4 to 10 mg. of ARISTOCORT.

Dosage and course of therapy

The initial dosage range recommended is 8 to 14 mg. of ARISTOCORT daily. Although a rare, very severe case may require more than this on the first day of therapy, these dosages will usually result in prompt alleviation of dyspnea, wheezing and cyanosis. Patients are soon able to carry out a normal span of daily activity.

The maintenance level is arrived at by reduction of the total daily dose every three days in decrements of 2 mg.; in the over-all series, the average daily dose for bronchial asthma is approximately 8 to 10 mg. and for allergic rhinitis, 2 to 6 mg. per day. All total daily doses should be divided into four parts and given with meals and at bedtime. As in every condition where corticosteroids are employed, each patient's treatment should be individualized and the maintenance arrived at by careful titration against signs and symptoms of disease.

Patients with chronic bronchial asthma may require steroid therapy for several months. And since asthma may be associated with cardiac disease, especially in the older age groups, ARISTOCORT is particularly useful because of its ability to cause excretion of sodium and water.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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5. Barach, A. L.: Personal Communication.
6. Segal, M. S.: Personal Communication.

The Promise of Aristocort

in Nephrotic Syndrome

- ◊ Fourteen patients with the nephrotic syndrome have been treated with ARISTOCORT for continuous periods of up to six weeks.

Results of treatment

Hellman and associates^{1,2} noted that ARISTOCORT, because of its favorable electrolyte effects, may well be the most desirable steroid to date in treatment of the nephrotic syndrome. However, thus far its use has been reported in only 14 children, of whom 8 had a complete diuresis and disappearance of all abnormal chemical findings. Four of the patients had diuresis, but continued to show some abnormal chemical findings, while two patients with signs of chronic renal disease failed to respond.

Dosage and course of therapy

In order to produce maximal response, 20 mg. should be given daily until diuresis occurs. The dose should then be decreased gradually and maintained around 10 mg. a day. After the patient has been in remission for some time, it may be advisable to diminish the dose gradually and discontinue ARISTOCORT.

in Pulmonary Emphysema and Fibrosis

- ◊ Eleven patients with pulmonary emphysema and/or fibrosis were treated with ARISTOCORT for continuous periods of over two months.

Results of treatment

Only small series of cases observed by Barach,³ Segal,⁴ and Cooke,⁵ are available. Barach treated patients who were not adequately controlled by prednisone, with the same dose of ARISTOCORT with significant improvement.

Dosage and course of therapy

The initial suppressive dose range recommended is 10-14 mg. daily. Frequently, there is a prompt decrease in cyanosis and dyspnea, with increase in vital capacity.

The average maintenance dose level was 8 mg. a day. If it is desired to maintain a patient on continuous therapy for some months, dosages as low as 2 mg. a day have been successful. All decreases in dosage should be gradual and at a rate of 2 mg. decrements in total daily amount, every two to four days. The daily dosage is divided into four parts and given with meals and at bedtime.

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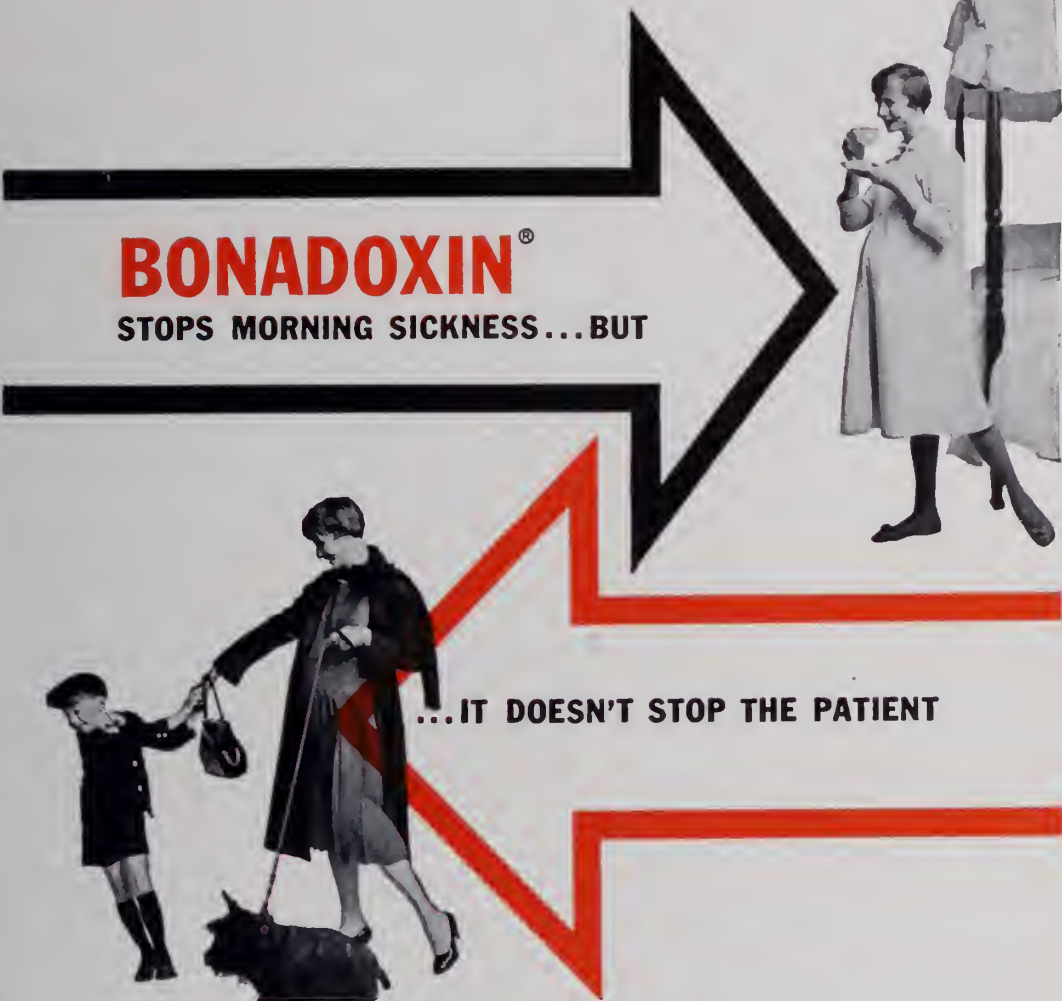
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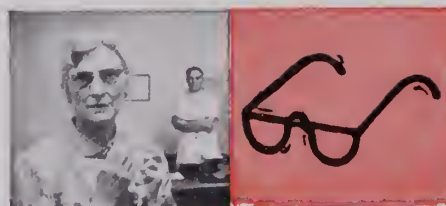
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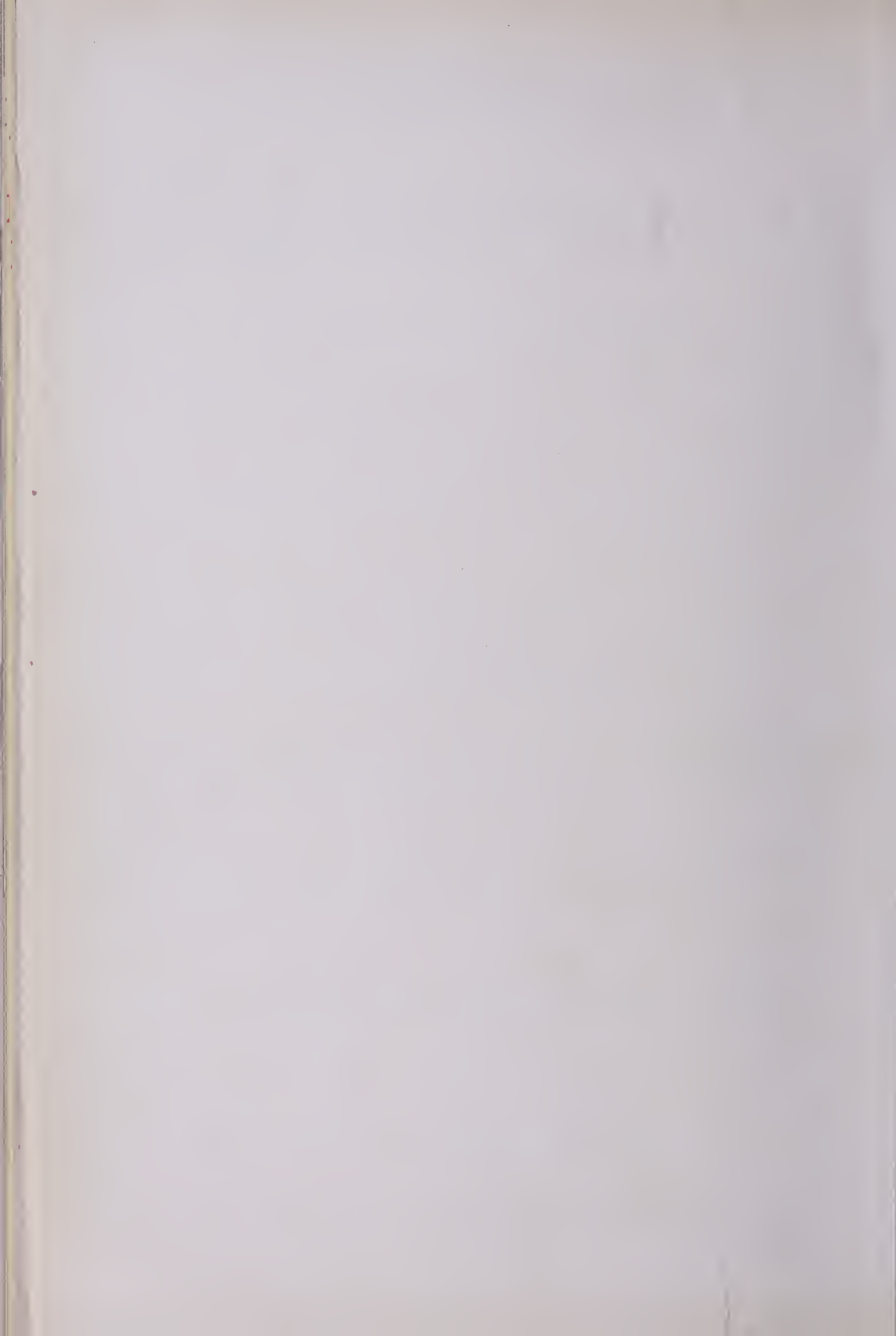
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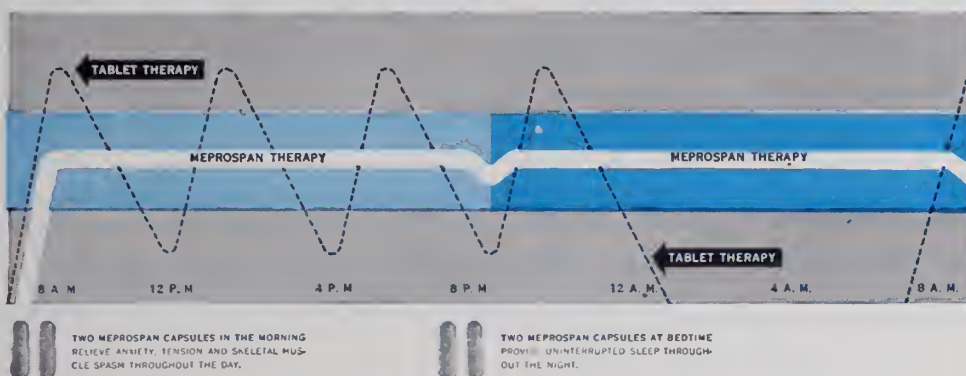
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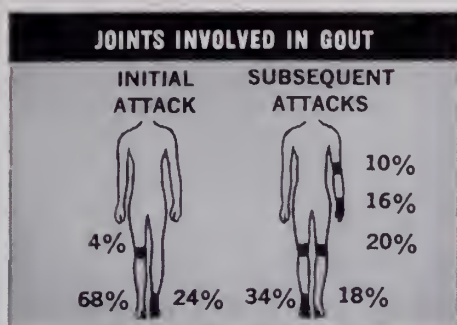
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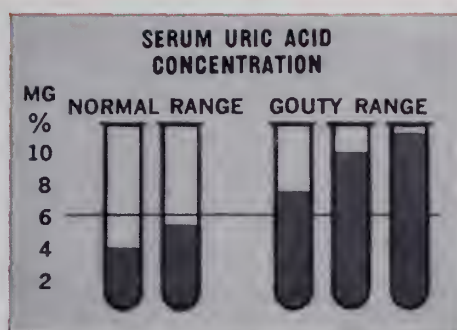
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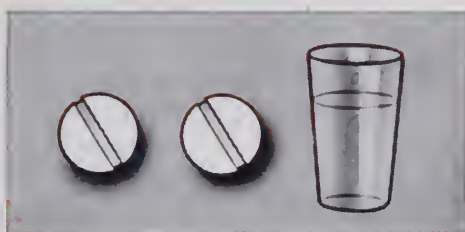
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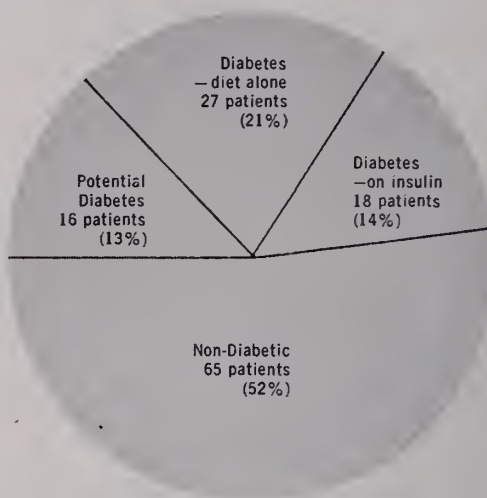


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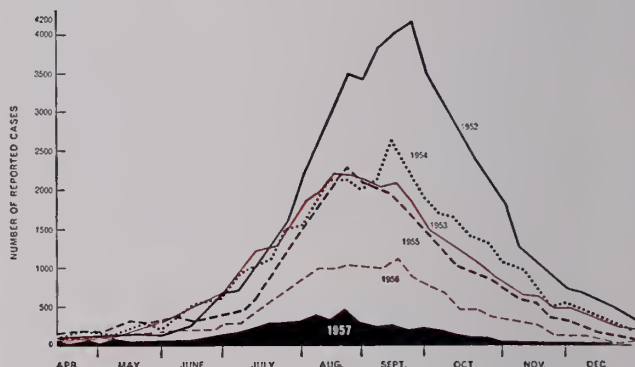
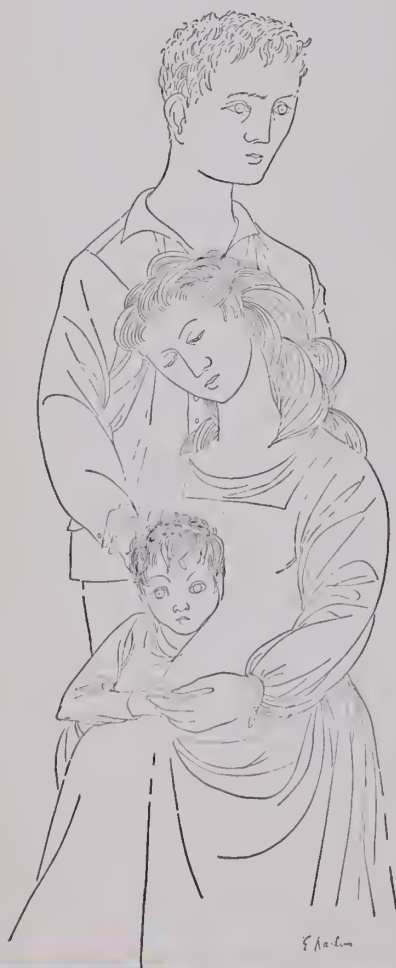
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1. J. A. M. A., 165:21 (November 23), 1957.

2. Department of Health, Education, and Welfare: News Release, October 10, 1957.

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BENIGN AND MALIGNANT POLYPS OF LARGE INTESTINE

PATRICK F. ASHLEY, M.D.*

Although several excellent articles have appeared in the literature on the subject of benign and malignant intestinal polyps, there is still difficulty in interpreting the varied microscopic growth patterns and in deciding the correct type of surgical attack on these lesions. It is the purpose of this report to classify and describe the histologic types, to discuss the criteria for malignant change, and to see to what extent histopathologic changes influence choice of therapy. The word "polyp" is used in a restricted sense, limited to benign mucosal neoplasms, either sessile or pedunculated in type.

CLASSIFICATION

1. Adenomatous polyp (adenoma, adult adenoma)
2. Papillomatous polyp (papilloma, papillary adenoma, villous adenoma)
3. Juvenile polyp (retention polyp, adenoma of childhood)

MORPHOLOGY

Adenomatous polyp (Fig. 1). This variety is characteristically pedunculated and only a few are truly sessile. The smaller lesions are generally smooth and regular while the larger ones tend to be lobulated. Microscopically there is a mucosa-covered connective tissue core or stalk carrying with it, from the adjacent bowel wall, a muscularis mucosa and an extension, varying in length, of the submucosa with its attendant lymphatic and vascular channels. The covering mucosal epithelium is characterized

by mature mucus secreting cells of the goblet type forming regular glands resembling those of normal colonic mucosa. Between the glands there is a variable quantity of connective tissue corresponding to the lamina propria of the colon.

Papillomatous polyp (Fig. 2). This variety is characteristically of large size, flat and sessile, with a papillary or finely lobular surface. Microscopically there are frond-like villous projections covered by tall columnar epithelial cells more often of the non-secreting type. Irregular shaped glands with frequent involutions are often present in the deeper portions. This variety of polyp presumably develops its characteristic appearance by arising from the surface epithelium (Fig. 3) as contrasted with the adenomatous variety which arises from the mucosal glands (Sunderland and Binkley⁷).

Juvenile polyp (Figs. 4 & 5). This type is pedunculated and regular in outline. Microscopically there is an abundant usually chronically inflamed stroma in which eosinophiles may predominate. The glands are sparse and frequently show cystic dilatation. The surface epithelium is usually replaced by granulation tissue.

ATYPICAL CHANGES IN BENIGN POLYPS

Frequently atypical changes are observed in benign polyps which are sometimes misinterpreted as carcinoma, whereas in reality the changes represent what is termed atypical hyperplasia. No apparent direct transition from atypical hyperplasia

* Resident in Pathology, The Memorial Hospital.

to carcinomatous change was noted by one group of writers who studied the problem.⁷ These atypical changes include pseudo-stratification of cell nuclei, frequent mitoses, and loss of secretory activity with consequent deep straining of the epithelial cells (Fig. 6). Another misleading feature in pedunculated polyps, according to Fisher and Turnbull², is the apparent presence of glands beneath the muscularis mucosa. This finding, which might well be interpreted as invasion, is really an artifact due to a plane of section through a twisted pedicle.

CRITERIA FOR CARCINOMA ARISING IN BENIGN POLYPS

Swinton and Warren⁸ suggested three important microscopic criteria for malignancy which are generally used by all writers in this field. These are:

1. *Anaplasia*. This is characterized by variation in the size and shape of cells and their nuclei, variation in chromatin content and arrangement, atypical mitoses, and prominent nucleoli.

2. *Irregularity of Architecture*. This is characterized by true epithelial stratification, intraglandular budding, and loss of cellular and nuclear polarity. The intraglandular proliferation of cells produces a gland-like structure and cell masses which are not separated by a limiting membrane.

3. *Invasion*. Invasion is recognized when no definite border is apparent between the epithelial cells and the surrounding stroma.

In order to make a definite diagnosis of malignancy at least two of the above three factors must be present. However, even when occurring alone, definite lymphatic or intravascular invasion nearly always means a malignant lesion.

Grossly, a polyp has no definite constant feature indicative of malignant change. Although ulceration and induration are noted features of malignant polyps, these changes may occur in benign lesions as a result of inflammation, fibrosis and hemorrhage.

CLASSIFICATION OF CARCINOMA ARISING IN POLYPS (After Fisher and Turnbull²)

1. *Carcinoma-in-situ* (Fig. 7). This is characterized by anaplasia and irregularity limited to the glandular elements of the polyp without evidence of invasion.

2. *Superficial Carcinoma* (Fig. 8). This is characterized not only by the cellular atypia and irregularity described above but also reduplication of lumina and invasion of the lamina propria. There is no extension into the muscularis mucosa, lymphatic, or vascular spaces.

3. *Invasive Carcinoma* (Fig. 9). This reveals invasion of the muscularis mucosa and/or vascular and lymphatic channels. The differentiation of superficial carcinoma from the invasive type is simplified by the presence of a definite fibrous tumor stroma in the latter.

TREATMENT AND DISCUSSION

It is now widely accepted that the polyps under discussion are true neoplasms and should be removed. The extirpation of these polyps is dependent on a number of factors, chief amongst which are:

1. Type of polyp.
2. Natural history of the polyp.
3. Presence or absence of malignant change.
4. Possible multiplicity of lesions.
5. Age of patient.

Because of these factors it is necessary to discuss each type of polyp separately and a few generalizations are then possible with regard to surgical management.

Adenomatous polyp. The adenomatous polyp is by far the commonest variety reaching a maximum incidence of 24% in the eighth decade.³ In nearly 50% of cases the polyps are scattered or multiple. This occurrence is often called multiple polypoidosis or adenomatosis coli but is to be sharply differentiated from the rare familial or congenital multiple polyposis in which condition malignant transformation is a

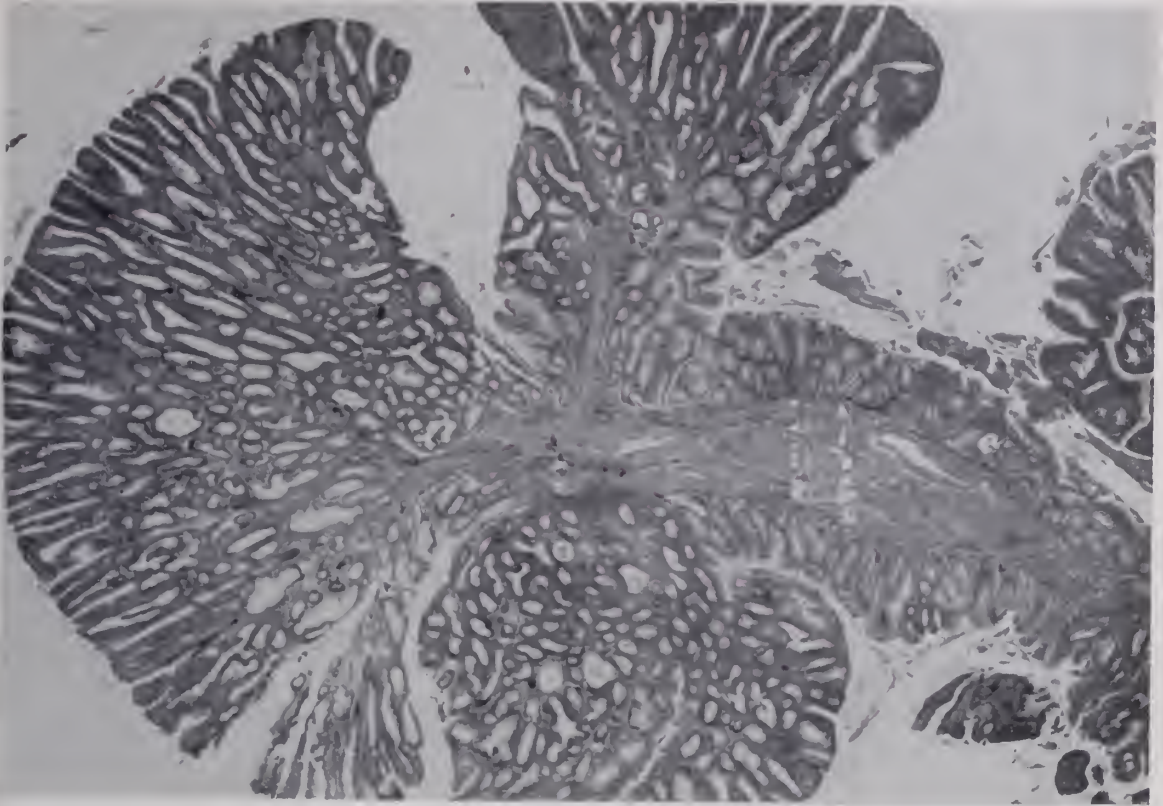


FIGURE 1
Adenomatous polyp, pedunculated. H & E x 25.

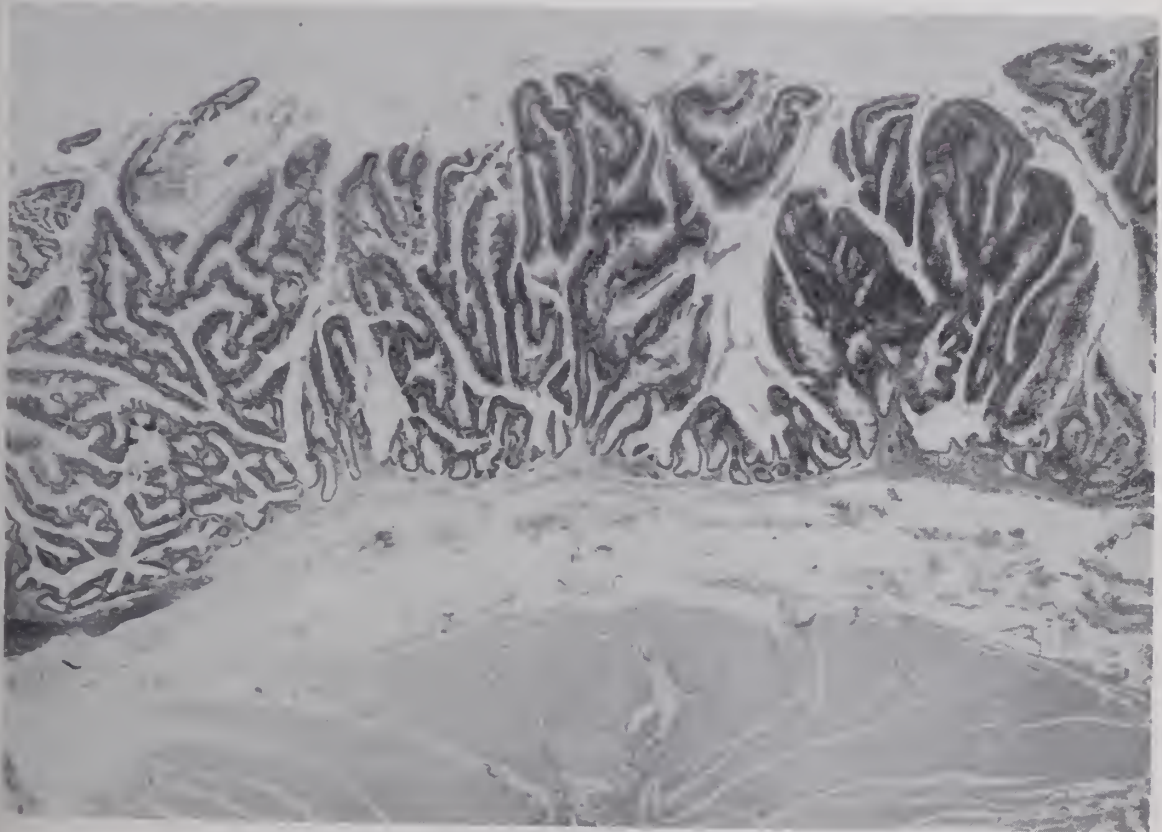


FIGURE 2
Papillomatous polyp, sessile. Note long thin villous projections. H & E x 25.

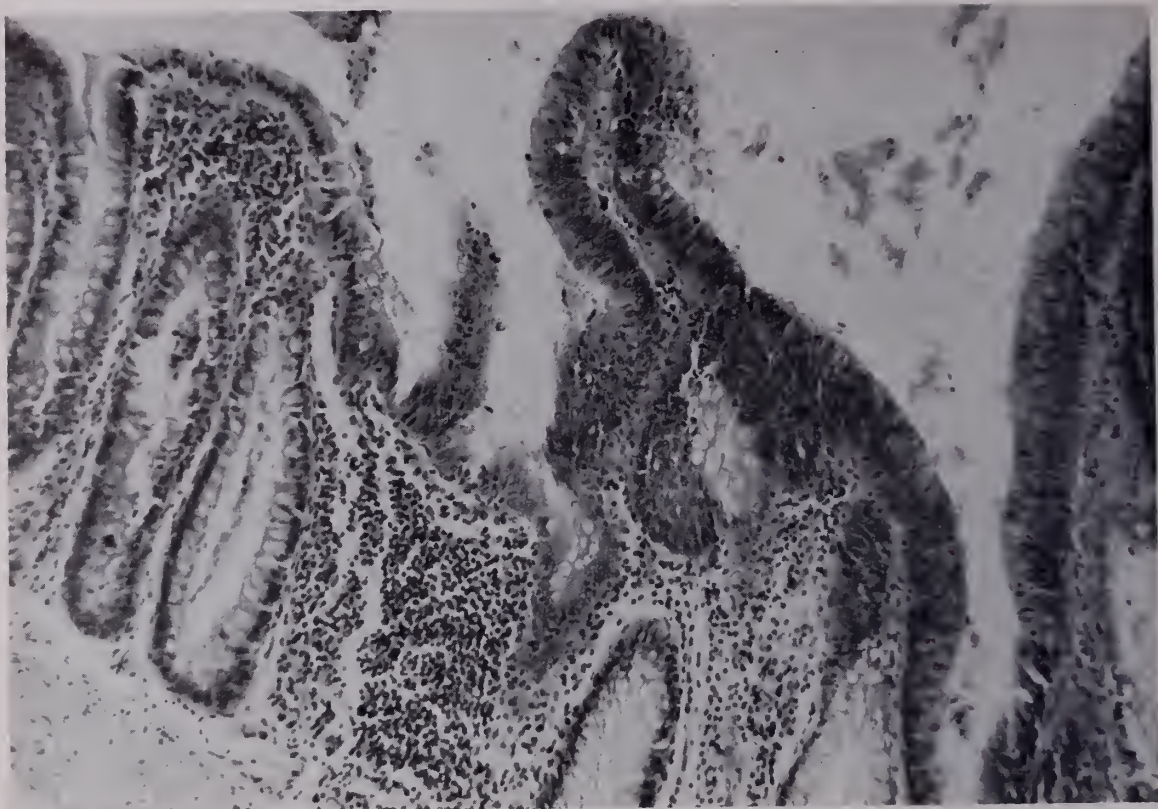


FIGURE 3
Papillomatous polyp. Note origin of villous process from surface epithelium. H & E x 120.



FIGURE 4
Juvenile polyp. Note large amount of stroma and cystic glands. H & E x 25.

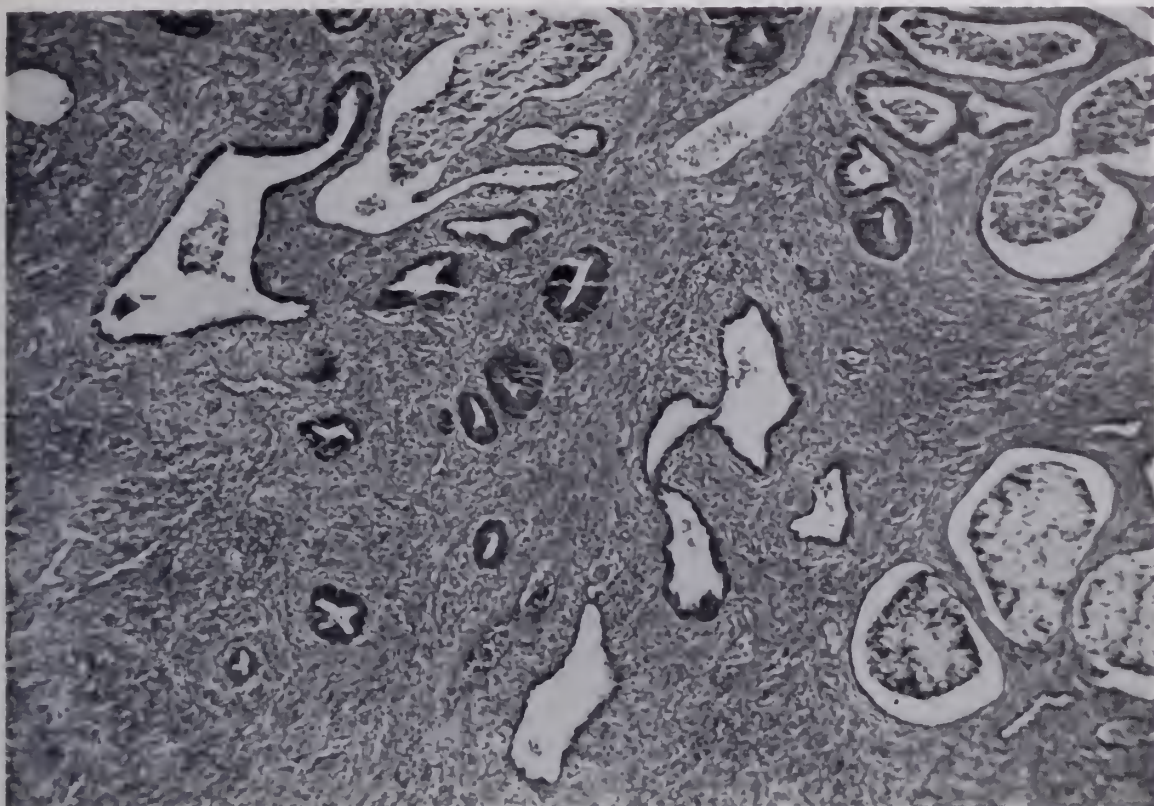


FIGURE 5
Juvenile polyp. Higher magnification of Figure 4. H & E x 75.



FIGURE 6
Atypical hyperplasia in adenomatous polyp. Note glands below showing irregularity in shape and deep staining cells. H & E x 120.

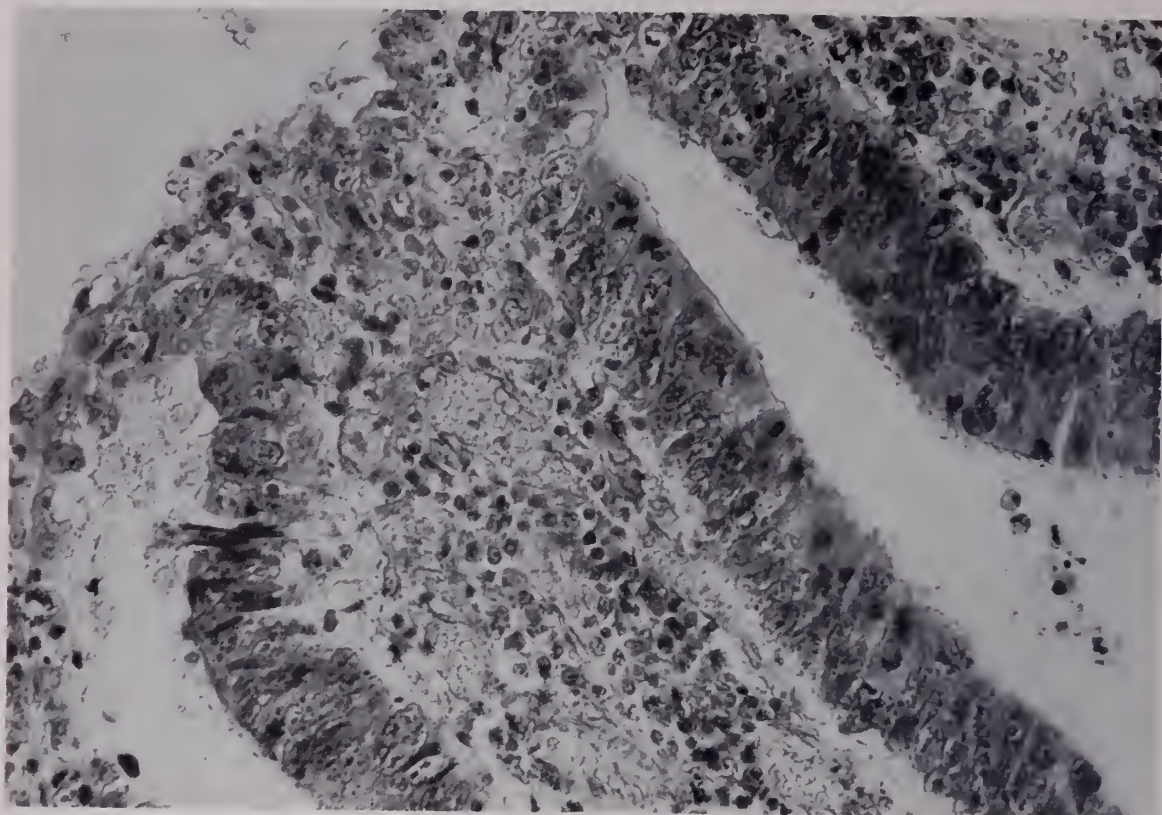


FIGURE 7
Carcinoma-in-situ in adenomatous polyp. Note nuclear atypism, stratification, loss of polarity and atypical mitoses. H & E x 400.

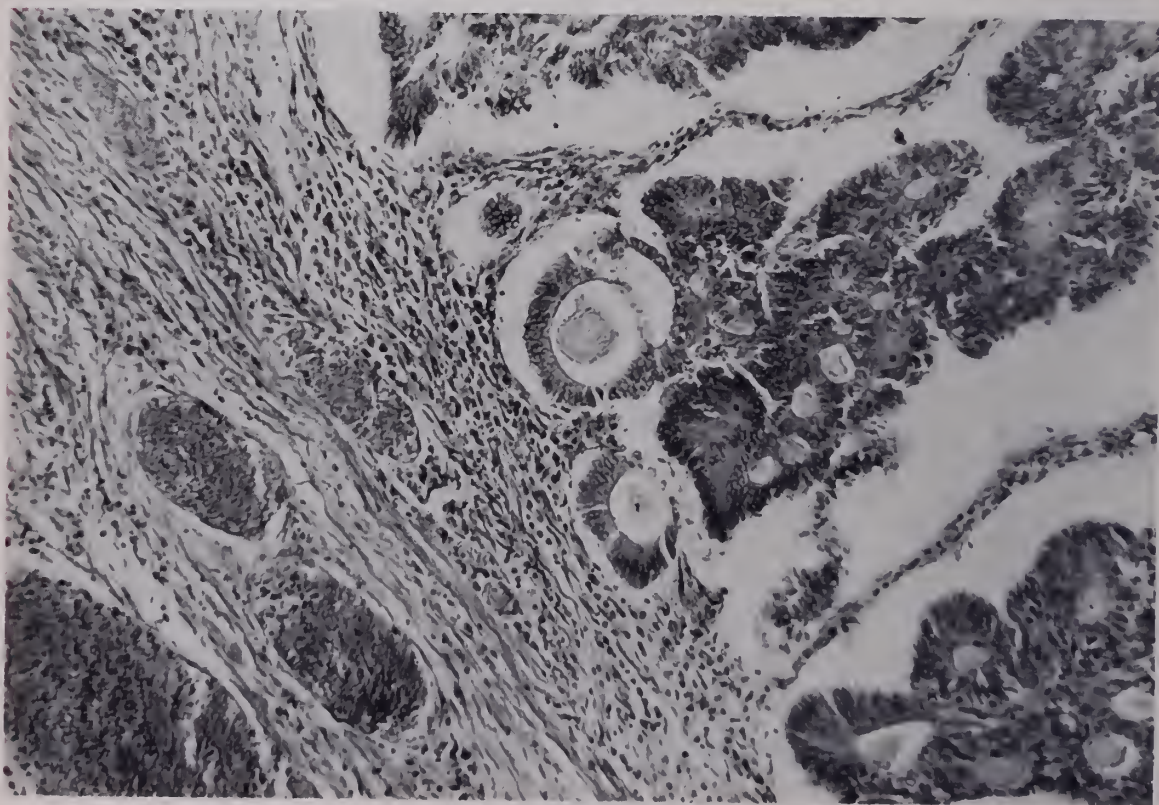


FIGURE 8
Superficial carcinoma in adenomatous polyp. Note cellular and architectural atypism. Muscularis mucosa and submucosa not invaded. H & E x 120.

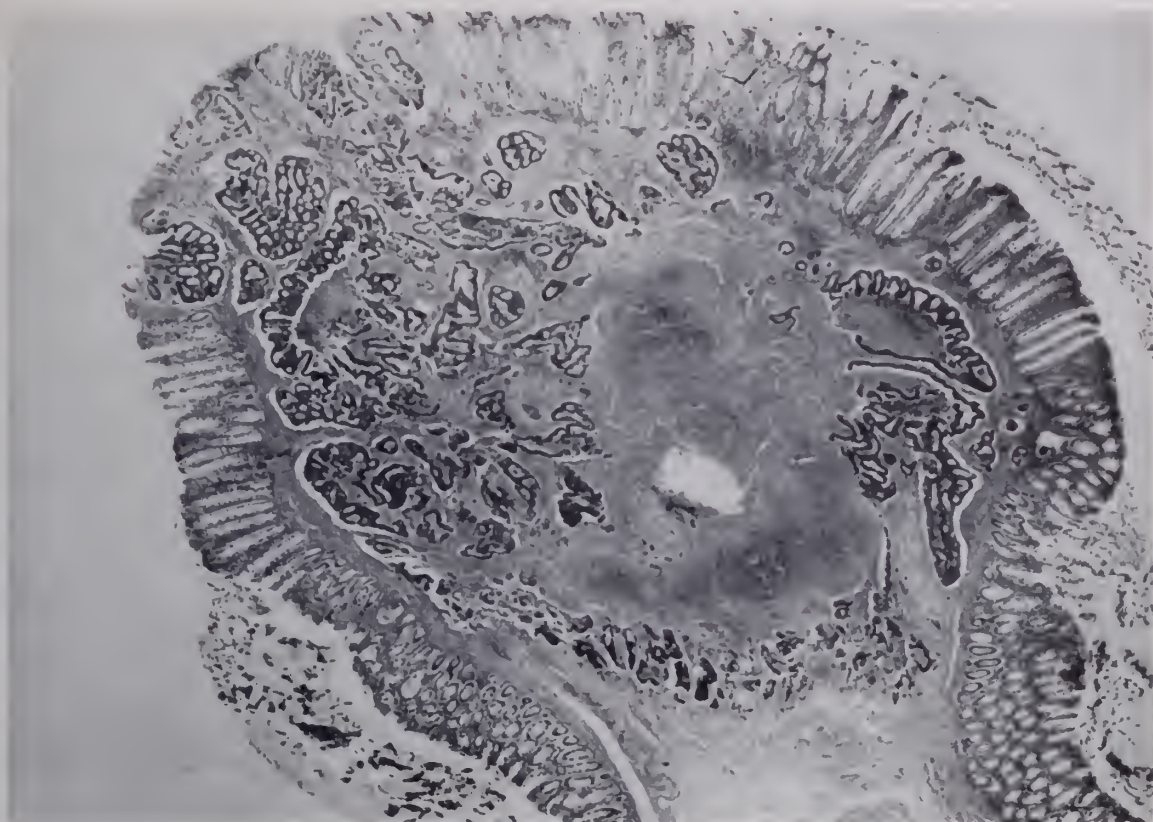


FIGURE 9

Invasive carcinoma in adenomatous polyp. Note extension into submucosa of stalk. H & E x 25.

certainty. Excluding this latter condition Helwig³ found, in a series of autopsies, that 7.2% of colons having benign polyps also had one or more malignant polyps. Swinton and Warren⁵ found malignancy occurring in approximately 14% of their series of polyps.

It has been shown that complete clinical cure of all benign adenomatous polyps and those showing carcinoma-in-situ or superficial carcinoma can be expected with local removal (with or without coagulation of the base) either through proctosigmoidoscopy or colotomy^{1,2,6}. Polyps showing invasive carcinoma are apt to recur as frankly invasive colonic or rectal adenocarcinomas if treated locally⁶. Therefore, radical surgery with removal of a segment of bowel together with its lymphatic and vascular supply is indicative if invasive carcinoma is present in the stalk, base, or adjacent bowel wall.

Papillomatous polyp. In comparison with adenomatous polyps this variety is de-

cidedly rare. They are usually solitary, confined predominantly to the rectum, and occur generally in the older age groups. Sunderland and Binkley⁷ in a series of 48 cases found carcinoma-in-situ in nearly 70% and invasive carcinoma ultimately developed in nearly 40%. Local excision may suffice if the polyp is small and histologically benign but even then recurrence is prone to occur. Resection of the rectum appears indicated for the benign polyps that cannot be fully removed or controlled locally and for those polyps that show non-invasive carcinomatous transformation. Invasive carcinoma is prima facie evidence for resection for, due to its sessile nature, the submucosa is readily and directly invaded.

Juvenile polyp. Helwig⁴ estimates that approximately 3% of children have juvenile polyps. This is exclusive of the first year of life during which period they are rare. Usually they are solitary with the sigmoid and rectum the site of predilection. It is

extremely doubtful if malignant change ever occurs in these lesions. As they are seldom encountered in adults, it is interesting to speculate on just what happens to them. Whereas some maintain they transform into the adult type (adenomatous polyp), the majority of investigators feel they become necrotic and slough. If the latter fate be true, our main concern in removal is for symptomatic relief and not for cancer prevention. Occasionally an adenomatous polyp is found in childhood and this requires investigation to rule out the possibility of congenital multiple polyposis.⁵

COMMENT

For the successful management of intestinal polyps there should be close cooperation between surgeon and pathologist. Adequate biopsies or preferably the entire polyp should be submitted for examination and multiple well oriented histologic preparations made. A diagnosis of "malignant polyp" is meaningless unless accompanied by a description of the type of polyp and the site and extent of malignant transformation. Grading of malignancy with respect to cellular anaplasia alone is also

meaningless as the employment of conservative or radical surgery is largely based on the anatomic extent and not the grade of malignancy.

Frozen section may sometimes be of distinct value in the management of polyps removed at colotomy. If there is a focus of infiltrating carcinoma, the fibrous reaction produced permits suitable tissue for examination.

Finally, while generalizations with regard to therapy are possible, it must be emphasized that each case be individually studied and appropriate therapy applied after consideration of all pertinent factors.

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TRANSPLANTATION IN THE TREATMENT OF BURNS*

LEOPOLD SCHEIBER, M.D.* *

The surgical treatment of burns has been receiving increasing attention. Literature dealing with the therapy of burns indicates changes in theory as well as in practice.

Industrial development and expansion have been accompanied by an increase in the incidence of tissue damage from burns. Therapies and medical techniques have undergone great changes. Some patients with such injuries may now be treated in special hospital wards built or organized specifically for this purpose. Such advances should not be taken to imply that the treatment of burns has been perfected, or that all burns are treated best by the same method. Further improvements are needed.

The modern treatment of shock with parenteral fluids, including whole blood and plasma, together with antibiotics, supports the extensively burned patient so that a transplantation may be performed. Reverdin¹ and Thiersch² in the last century attempted transplantation, but the injured person died either from shock or infection before the operation could be completed.

Goldzieher and Makai³ summarized the literature on transplantation published prior to 1912. Shortly thereafter, in connection with accidental injuries, Kubanyi⁴ began work on transplantation of the skin itself and the "laying of skin patches." The last 20 years has brought much progress in this field. Shock and infection can be successfully combated, and the skin needed for transplantation can be stored in freezing compartments of refrigerators. Stored transplantation pieces hold promise of more success than fresh tissue because through refrigeration the quantity of the individual "texture-antigen" (despecification of texture) decreases.^{4a}

The absence of skin provides a portal of entry for pathogenic organisms and results in extensive, significant loss of fluids. Also, heat control is impaired. Therefore, the part of the body lacking epithelial tissue has to be covered with substitute tissues as soon as possible. For this transplantation, homotransplants, postmortem homografts, and either fresh or preserved amnion membrane can be used. Amnion can be obtained either from a Caesarean section or a normal delivery. Brown^{5,6} points out that changes in the patient's general condition varies in direct proportion to the area of burned skin and emphasizes the significance of the postmortem homograft as a "biological dressing." He also proposed the use of amnion to cover burned parts of the body. Douglas^{7,8} and others have demonstrated by means of animal experiments that the seronegative amnion, which remains viable longer than skin transplant, can be successfully used under aseptic conditions.

Kubanyi⁹ accomplished the first application of amnion derived from a Caesarean section. A later attempt was made to preserve by refrigeration amnion obtained from normal birth. If refrigeration is prompt, the intra- and inter-cell liquid will freeze into small, thin crystals, so that the cell and tissue structure is not damaged or changed. The membrane is stored in a Duward bottle at 20-30°C. Before use, the amnion is heated in a sterile saline solution at 40°C. Grunfeld and Wenzl¹⁰ maintain the amnion in identically grouped conserved blood. They stress that the derivation of the amnion can be other than a Caesarean section. The blood used for storage by Moser is maintained at an even temperature between 2 and 4°C. After it is four weeks old, the amnion originating from normal birth is strong enough to live.

* This work was performed at St. Rokus Hospital, Budapest, Hungary.

* * Present address: Memorial Hospital, Wilmington.

Bacteriological examinations of amnion have revealed the presence of *Bacillus coli*, *Doderlein's bacillus*, and *hemolytic streptococcus*. This necessitated sterilization of the membrane by steam. Amnion which is conserved in blood, viable, and sterilized by steam has proved to be the tissue of choice for reasonable success as a transplant for covering peritoneal defects.

The amnion is placed on the defective skin part and may be sewn at the edges. A pressure bandage may also be used, but if the pressure is too great, an ischemic necrosis may occur.

Definitive success with homotransplantation can be expected only in the case of identical twins. In other cases, the skin graft will be repulsed earlier or later after temporary adherence. The greater the commonality between the blood group system of donor and that of the recipient, the longer will be the life of the skin graft. Because a homotransplantation is the combat of biological defense substance, an organ with an appreciable degree of homogenized antigen structure is desirable for overplanting. Such an organ is amnion.

Kubanyi used amnion for the first time in 1941 for covering skin defects which were not directly caused by burns. In 1943, he again used it in his first attempt at compensation for peritoneal defects. Since that time interest in the storage of amnion for covering of burns has heightened (independent from the Caesarean section of normal birth and that also the necessary examinations, Wasserman reaction, determination of blood groups, Rh-factor, does not have to be compared with all the time, as this can be done by refrigeration.)

Burns have recently been treated by homotransplantation, and covering with lyophilized skin has proved successful in more than a few reported cases. The organization of skin donors also has progressed. While skin parts from postmortems have not yet been used, attempts are being made to store skin taken from living human beings for use as grafts. The "skin-bank" mentioned in the literature is the depository for skin from neonatal deaths and adult victims of accidental death. The skin

is removed with a dermatome and stored in fluid nitrogen at -79°C .

Sterling¹¹ in 1956 reported two cases in which the burnt skin was covered with amnion. One of the patients was a woman 38 years of age who sustained flame burns covering 60 per cent of her body. Five weeks after the accident occurred, amnion transplantation was attempted. Marked improvement followed transplantation, but the woman later died from a lung embolus. The other patient, a six-year-old boy, had flame burns covering 65 per cent of his body. Sterling covered the skin defects with amnion obtained from two Caesarean sections three weeks after the accident occurred. This patient recovered.

The author's¹² experience with the use of amnion and homotransplantation in this instance case may be of interest and significance. The amnion used by the author in 1952 for the covering of skin defects was unsuccessful. This same case was the first report in Hungary of successful use of homotransplantation for burns. (Frank¹³)

On August 21, 1952, a girl, age 9, was transferred to *St. Rokus* hospital from another hospital where she had previously undergone conservative therapy for flame burns. The patient was emaciated and anemic. (Fig. 1). She had second degree burns extending over approximately 50 per



FIGURE 1
Patient showing second degree burns of buttocks, left leg and elbow.

cent of the body, on the buttocks, left leg, and left elbow. On August 28, 1952, fresh amnion derived from a Caesarean section was used to cover the skin defects. Injections of penicillin and saline solution dressings were used, but the body temperature increased from 100°F. to 102°F. Suppuration occurred, and the amnion had to be removed. The patient received penicillin, vitamins, and five blood transfusions (100 cc each). On September 10, 1952, "iso-agglutination-sampling" and corresponding preparations (blood group: B(111), Rh (D) +) by Reverdin from mother to daughter (syngenesia), a homotransplantation of skin from the mother's body to the left elbow, the left foot, and the buttocks of the patient (Figs. 2 and 3) was performed. Next, the limbs were placed in plaster casts. The patient's appetite and general condition improved. After two weeks the transplant had adhered firmly

to the surrounding and underlying tissue and structure.

After five to six weeks, the transplant had loosened to some extent to bare fresh epithelial skin underneath. The patient was discharged on December 20, 1952, in excellent condition. On my last examination August 21, 1956, the patient had good muscle control and exhibited ability to flex and extend both legs and elbow. (Figs. 4 and 5)



FIGURE 2
Patient during homotransplantation; donor (mother) in background.

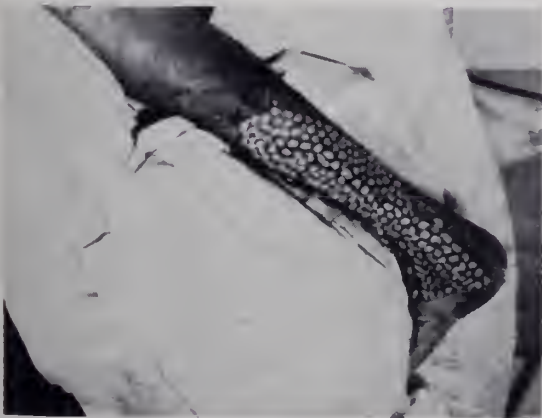


FIGURE 3
Close-ups of transplants to left leg.



FIGURE 4
Some patient, four years later.



FIGURE 5
Some time as Fig. 4; these demonstrate ability of patient to flex and extend extremities.

SUMMARY AND CONCLUSIONS

The significance of the homotransplantation of the skin is emphasized, and the author also discusses the problem of skin-graft conservation with special reference to the use of sterile amnion originating from normal birth or Caesarean section. Cases from the literature are discussed, as well as one of the author's own cases in which the skin of the mother's abdomen was overplanted with Reverdin plastic on the extensively burned body of the daughter. The author believes that the surgical treatment of deep burns can be effected systematically and expertly through refrigeration and storage of transplantation. Covering is also possible by homotransplantation employing sterile, conserved amnion with temporary success. Although the full value of the amnion membrane is yet to be realized, its immediate use in treatment for extensive burns has been established.

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ATYPICAL ACUTE GLOMERULAR NEPHRITIS IN THE ADULT*

WILLIAM T. HALL, M. D., ROBERT W. FRELICK, M.D.,
and JOSEPH W. ABBISS, M.D.

There appears to be atypical acute glomerular nephritis that may be present with minimal urinary findings, without fever, significant oliguria, hypertension, or edema of the face. While a patient may have acute nephritis without having all of these signs, it is most unusual for all of them to be absent.

CASE REPORT*

A 37 year old, white, married woman was admitted to the Memorial Hospital May 30, 1956, for the third and final admission.

Her first admission was in 1953, at which time a D. and C. was done for uterine bleeding. Admission count was 2.74 million red cells and 5.5 gms. of hemoglobin; W.B.C. 5,700. She received two pints of blood postoperatively and had a febrile reaction after the second pint. Urinalysis: PH6.5; sp. gravity 1.015; alb. and sugar negative; 0-4 WBCs hpf. Pathological report: Endometrium, follicular phase.

Following this admission she did well for almost a year, but thereafter began to flood again, and by July of 1955 was using three boxes of super-Kotex per period. In 1955, she was admitted for a second D. and C. The admission blood count: R.B.C. 4.09 million; Hgb. 8.3 gms.; Urinalysis: normal. Although on the first admission mention was made of uterine fibroids, no fibroids were found on this admission. The pathological report: Endometrium, late secretory phase. A bone marrow aspiration was done at the operation and was reported as normal. After this admission she was well for three months, but gradually her flow increased. On the period just prior to admission she flooded thirteen days — stopped two days — then flooded five more

days. After the first ten days of this period, treatment was begun with Testosterone and Stilbesterol. When they appeared to be ineffective she was admitted to the hospital.

Past Medical History: In 1951 she had a typical duodenal ulcer which was confirmed by x-ray. The symptoms recurred in 1955 and responded satisfactorily to treatment. There was hyper-acidity present with the free hydrochloric acid up to 56°. For at least ten years she had a low-grade hypochromic anemia which was at times normocytic and at others microcytic. Oral iron tended to upset her ulcer, and intravenous iron (40 mgs. Proferrin per week) caused fainting and dizziness. In 1952 she had had an attack of Meniere's Disease which lasted six months. There had been a left mastoid operation at age one.

Physical Examination: The patient was a slightly obese, pale-skinned, white female. B.P. 138/80. Pulse 74. Resp. 20.

Heart, lungs, abdomen, and extremities were negative. Vaginal examination revealed a tiny cervical polyp and an irregularly enlarged corpus.

Admission laboratory data revealed: R.B.C. 2.92 million; Hgb. 8.5gms.; W.B.C. 7,500; Segs. 84%; Non-segs. 5%; Lymphs. 10%; Eosin. 1%; Hematocrit 32%. Urinalysis: Yellow; PH7 reaction; sp. grav. 1.011; neg. sugar and alb.; 20-30 sq. epith. cells; 0-2 WBCs hpf.; Kline negative.

Hospital Course: (Figure 1) In her first five hospital days she received four blood transfusions with febrile reactions on the first and fourth. After the second transfusion she was noted to have pain in the right loin of which she continued to complain. On the second hospital day she

* From the Memorial Hospital, Wilmington, Del.

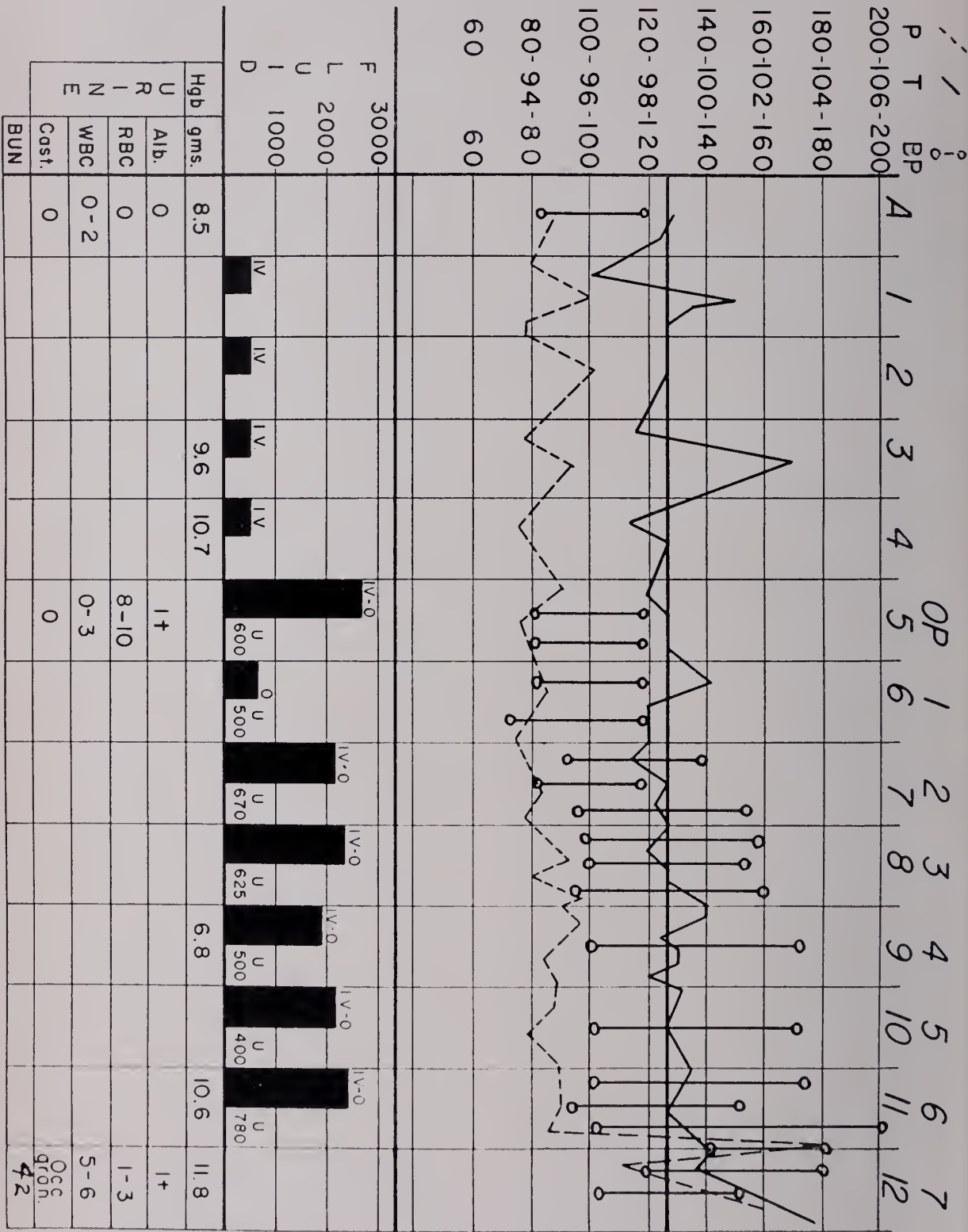


Figure 1



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metaphosphate produced markedly higher blood levels than capsules containing either the corresponding base or the hydrochloride alone. In addition, the average levels derived from the tetracycline base or the chlortetracycline base were higher than those produced by the corresponding hydrochloride though lower than those resulting from the mixture containing the base and sodium metaphosphate. In the study with chlortetracycline⁶ capsules containing a mixture of the hydrochloride and sodium metaphosphate were also included in the crossover, and the average levels produced by these capsules were the same as with the mixture of chlortetracycline base with sodium metaphosphate.

Although the enhancement of blood levels of tetracycline by phosphate, either complexed to the tetracycline or mixed with the base or the hydrochloride, thus seemed fairly well established, some doubts still remained because certain reliable observers (including many whose results have not been published) failed to confirm the findings with the materials and methods they used. Further confusion seemed to be added by a subsequent report of Welch et al.,⁷ who, in repeating a crossover study with capsules of tetracycline phosphate complex and tetracycline hydrochloride with and without sodium metaphosphate, found much higher blood levels with the tetracycline phosphate complex than with the tetracycline hydrochloride.

cycline base. Dicalcium phosphate and food resulted in lower, and sodium metaphosphate in higher, serum antibacterial activity than was observed in their absence. Oil and sorbitol did not interfere with tetracycline absorption.

Dicalcium phosphate is widely used as a filler in various capsules, including those of the tetracyclines. The authors cite a large number of other studies that implicate the presence of calcium ions as the cause of the reduced absorption of tetracyclines and show that citric acid can partially neutralize this effect. The depressing effect of food on the serum levels of tetracycline is likewise explained by the goodly amount of minerals contained in commercial laboratory diets, and they postulate that the multivalent cations may be responsible for the poorer absorption of the drug. The authors could not explain the failure of citric acid to enhance serum concentrations when administered with tetracycline base in contrast to its marked effect when given as the hydrochloride. However, they hypothesized that the ability of citric acid to enhance serum levels of tetracycline is related to its ability to form complexes with calcium ions.

“...Tetracycline hydrochloride and citric acid, in an encapsulated mixture, produced higher serum concentrations and greater urinary excretions, and hence better absorption of tetracyclines, than any other preparation studied...”

of sodium metaphosphate were published simultaneously with the last mentioned report of Welch et al.⁷ These data were based on thoroughly controlled studies both in rats⁸ and in man⁹ and include additional findings that serve to explain, fairly conclusively, the various discrepancies that have been mentioned.

The experiments in rats⁸ were carried out to study the effects of citric acid, dicalcium phosphate, sodium metaphosphate, food, oil and sorbitol on the serum antibacterial activity produced by the administration of tetracycline hydrochloride or tetracycline base. Citric acid administered in equal weight with tetracycline hydrochloride gave the highest concentrations of all the preparations studied. No enhancing effect was obtained from citric acid when given with tetra-

amendium to the last mentioned paper of Welch et al.⁷ indicates that in their study the capsules of tetracycline hydrochloride, chlortetracycline hydrochloride and tetracycline phosphate complex all contained dicalcium phosphate as a filler, whereas the capsules containing citric acid and sodium hexametaphosphate did not contain any dicalcium phosphate. This could clearly explain the discrepancies noted in that study. Likewise, the inconsistencies in other studies may very well have been due to the presence of calcium as fillers in some of the capsules and not in others.

This, however, fails to explain the most recent findings of Welch and Wright,¹⁰ who compared the absorption of three capsules, each containing 250 mg. of oxytetracycline hydrochloride — one without any adjuvant, one with 250 mg. of citric acid and the third with 380 mg. of sodium hexametaphosphate; no other filler was contained in any of these capsules. In triple

crossover studies, they as-
lected one, three and six
found that sodium hexa-
average serum concentra-
three hours, whereas the
average levels of oxyte
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Editorial.

The New England Journal of Medicine.

258:97-99, (January 9) 1958

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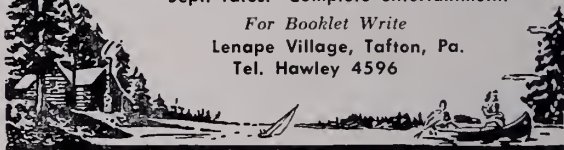


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slipped and fell in the bathroom; there was some question as to whether she became unconscious.

On June 3: R.B.C. 4.48 million; Hgb. 10.7 gms. catheterized specimen on that day revealed: sp. grav. 1.009; PH5; alb. 1+ sugar neg.; 3+ sq. epith. cells; 8-10 RBCs and 0-3 WBCs/hpf.

The diagnosis was made of hemorrhage from a fibroid tumor of the endometrium and surgery was performed on June 3rd. Approximately 500 to 600 cc. of dark, hemorrhagic fluid were found in the pelvis. The right ovary measured about 5 cms. in diameter and contained a large chocolate cyst. The left ovary measured 3 to 4 cms. in diameter and also contained old blood. The uterus was approximately normal in size and contained a submucous fibroid measuring about 3½ cms. in diameter. Palpation of the left kidney revealed the presence of a cystic tumor mass in the lower pole which measured about 4 cms. in diameter. The gallbladder was tensely distended, but no calculi were palpable within it. The right kidney was normal to palpation. During surgery the patient received 500 ccs. of blood without reaction.

On the first postoperative day her dressings became soaked with blood and she became weak and nauseated and very nervous; however, her abdomen was soft, and peristaltic sounds were normal. She fainted the first time she was out of bed on her second postoperative day. The third postoperative day she became nauseated, and it was noted that her diastolic pressure had risen to 100, but it fell to 80 later on in the day. Thereafter the blood pressure gradually increased to 160/100. On June 8 the hemoglobin was reported to be 6.8 grams, and she received a pint of blood on that day and another the following day. In spite of adequate fluid intake she continued to have a low urinary output of 500 to 670 cc. On June 10 she became orthopneic but her lungs were clear to auscultation. The pulse rate was 95. At 10:59 P.M. on June 10 she had a convulsion in which she first stared straight ahead, then the eyes looked off to the left, and tonic movements began in the right arm without

a clonic phase but with complete loss of consciousness. There were three more convulsions between 10:59 and 1:10 A.M., and this time it was noted she was in pulmonary edema. Positive pressure oxygen was begun, and she received 1.2 mgs. of Cedilanid intravenously, Aminophyllin by vein, and intramuscular Dilantin as well as barbiturates and intravenous sodium amytal. The following morning studies were as follows:

Urinalysis: sp. grav. 1.001; PH5; alb. 1+; sugar neg.; moderate epith. cells; 1-3 RBCs and 5-6 WBCs hpf.; granular casts.

Blood Count: R.B.C. 3.85 million; Hgb. 11.8 gms.; W.B.C. 37,000; Segs. 73%; Non-segs. 19%; Lymphs. 8%; Platelets 554,000.

Blood Urea Nitrogen: 62.2 mgs. %

CO₂: 41.2 volumes %.

Chlorides: 103.7 milleq.

Sodium: 126 milleq. liter.

Potassium: 5.25 milleq.

At 7:35 P.M. her fifth convulsion occurred during which she expired. She had been relatively afebrile except for the two transfusion reactions and a fever that began in her last eight hours of life, 101 to 102 degrees. With the convulsions the pulse increased to 180 on one occasion then dropped down in the post-ictal stage to 110 but rose gradually to 140 and 156 just prior to death.

Post Mortem Examination: Brain: Weight was 1,410 grams and showed moderate edema. Each pleural cavity contained 1000ccs. of clear, straw-colored fluid. The right lung weighed 1000 grams; the left, 750 grams. There was severe hemorrhagic edema without pneumonia, tumor, infarction, or abscess formation. The heart weighed 380 grams. The coronary arteries revealed them to be grossly normal. The heart revealed no valvular disease. There was some dilation of the right auricle and ventricle. The myocardium revealed no evidence of old or recent myocardial infarction. Peritoneal cavity: On opening the peritoneal cavity approximately 150 to 200

ccs. of light, sero-sanguinous fluid was found to be present. No evidence of peritonitis was found. The gallbladder was normal. The liver weighed 1,650 grams and showed marked congestion with accentuation of the normal hepatic architecture. The spleen weighed 220 grams, quite firm on sectioning, and was found to be markedly congested. The pancreas was normal, as was the gastro-intestinal tract. The adrenal glands were also normal. There was no enlargement of the kidneys; each kidney weighed 180 grams. Capsule stripped with ease and revealed large, pale kidneys which were rather flabby in consistency. This severe pallor to be sharply limited to the cortex. The pyramids were striated, being alternately gray and red. There was no evidence of tumor formation, of stone, or pyelonephritis, nor of hydronephrosis. There was no increase in peripelvic fat. The ureters were not dilated, and the urinary bladder presented no gross abnormalities.

The uterus, fallopian tubes, and the ovaries were absent, and the peritoneum

was closed with sutures over the site of their usual location. External genitalia were normal. The lymph nodes were normal. Bone marrow section and bone marrow presented no gross abnormalities.

Microscopic Examination: Lungs: The lungs show marked congestion together with edema. Many of the alveoli contain large macrophages containing blood pigments, so-called heart failure cells. Sections taken from various sections of the brain show some edema. The spleen is markedly congested. The myocardium, pancreas, and adrenal glands are normal. Kidneys: The histology of the kidneys is striking (See Figure 2). The glomeruli are diffusely affected and show proliferation in Bowman's-Capsule together with proliferative changes in the capillary tufts, many of which almost completely fill the glomerular space. In addition, exudative changes are present within the glomeruli, red blood cells, and protein material lying in the glomerular space. Red blood cells are noted in the proximal renal tubules. There are very

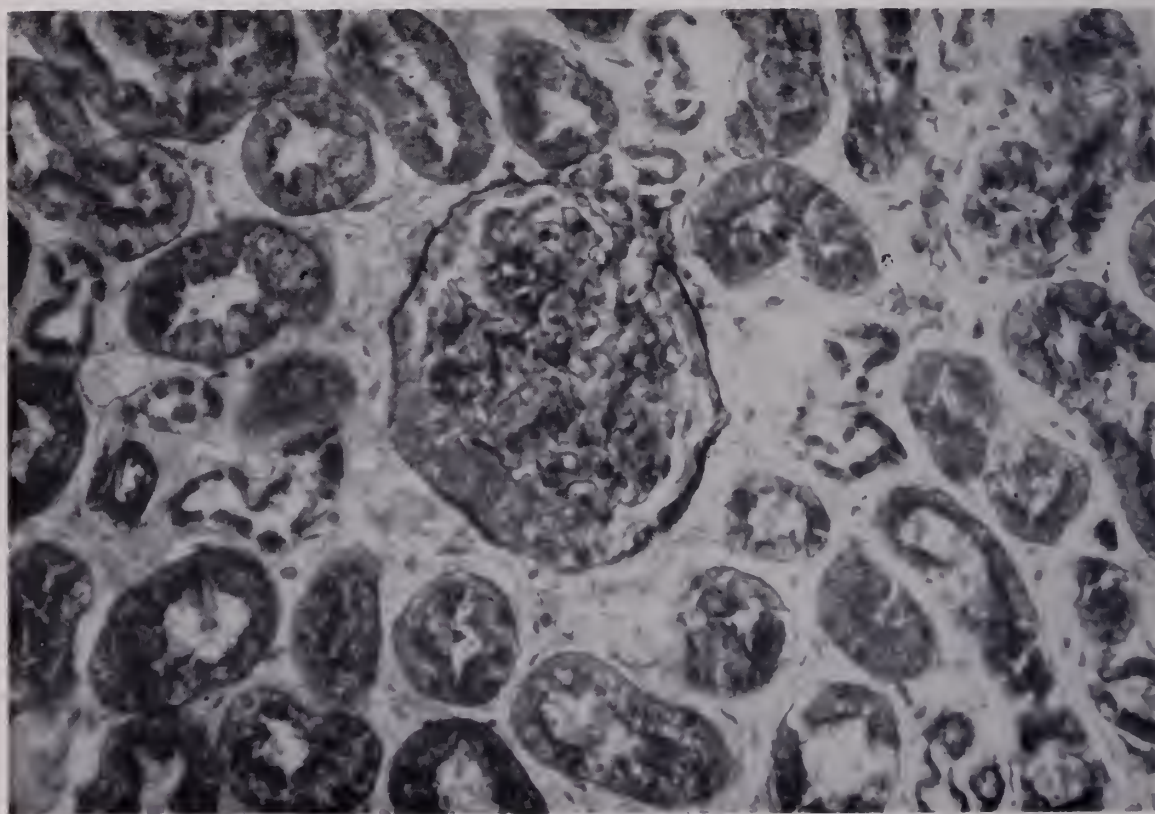


FIGURE 2
Section of kidney showing swollen capillary tuft, thickening of Bowman's capsule and exudate within glomerulus.

marked post-mortem changes in the renal tubules, but in addition some of the tubules show ante-mortem degenerative changes. The features are those of acute diffuse glomerulonephritis.

Pathological Diagnoses: Acute diffuse glomerulonephritis with uremia.

Total hysterectomy and bilateral salpingo-oophorectomy
(status postoperative eight days)

Myocardial decompensation, pulmonary edema, and congestion with passive congestion of liver and spleen.

Although the diagnosis of glomerulonephritis was mentioned ante-mortem, it was not considered seriously by the ten physicians who saw her during her final hospitalization. The reasons given were the lack of any previous renal symptoms (nocturia, dysuria, frequency, etc.); the normal urine studies over the past two to three years (these were only office and hospital urinalyses); the minimal changes in the urine; the absence of edema (or possibly its masking by her pallor from the anemia and her moderate obesity); and the rather insidious onset of the oliguria in the post-operative period.

A niece had developed an attack of acute nephritis approximately two weeks before the patient entered the hospital. However, members of the two previous generations on the other side of the niece's family had succumbed to glomerulonephritis which appeared to put the heredity trait very definitely out of our patient's family.

We reviewed the charts of patients ten

years of age and older with acute glomerulonephritis at the Delaware Hospital and the Memorial Hospital in this City from January, 1950, to June, 1956, and these will be reported in detail at a later date. Our most significant findings demonstrated that out of fourteen deaths, twelve died with diagnoses other than glomerulonephritis, and in eleven there is no evidence from the charts that the diagnoses were considered ante-mortem. Within the past two years Dr. S. S. Bjornson, Medical Examiner of the State of Delaware, has found four more cases of acute glomerulonephritis among patients dying of unknown causes. Two other cases have also appeared in the last six months on the hospital wards. In all these the diagnosis was not suspected ante-mortem.

It may well be that there is a type of acute nephritis which progresses rapidly to death and about which little can be done. However, the low index of suspicion and the high mortality among these cases give us hope that with earlier recognition more rational therapy can be planned. The diagnosis should be suspected in any patient who is not doing well. Appropriate urine studies, BUNs, and a careful intake and output record should be kept. As in renal insufficiency from any other cause, electrolyte fluid and protein balance are the mainstay of treatment. Anti-hypertensives, analeptic drugs, and adequate rest are important. The part the artificial kidney will play in this phase of nephritis is yet to be determined.

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HEARING AIDS: INHERENT DANGERS IN FITTING

J. ROBERT FOX, M.D.*

There has been an increasing trend for the person who is hard of hearing to purchase a hearing aid directly from a salesman, either in his home or over the counter of a drug, jewelry, or department store. The following case reports illustrate the importance of a careful evaluation of the patient who presents himself with the complaint of deafness. In each history the symptom of depressed hearing represented a partial deafness in only one ear. There had been no catastrophic illness, no otorrhea, no otalgia and the patient could have just as easily sought the advice of a hearing aid salesman as an otologist. The difference in outcome, had the former been chosen for consultation, is the point I wish to make.

A 63 year old white man, developed deafness and tinnitus in the right ear one month prior to examination. Self administered irrigation of cerumen from his external canals had failed to give any relief. Both tympanic membranes were of normal color and clearly visible through cerumen free canals. The right tympanum was considerably more retracted than the left. Anterior nares were clear. The oropharynx showed clean tonsil fossae. The neck was negative for lymphadenopathy. Examination of the nasopharynx prior to catheterization and inflation of the Eustachian tubes showed a small white mass superior to the right Eustachian orifice. This area at first glance through the nasopharyngoscope appeared to be purulent secretion but manipulation with a cotton tipped applicator indicated this was necrotic tissue. Catheterization and inflation was carried out with transient improvement in the hearing of the right ear, suggesting that compression of the Eustachian tube had accounted for the retracted right tympanic membrane

and deafness. Next a biopsy was taken from the white mass and sent for microscopic study. Dr. O. J. Pollak, Pathologist of the Kent General Hospital, reported a malignant epithelioma. A high degree of malignancy was indicated by a large number of mitotic figures and accounted for the superficial necrosis. Following the biopsy report, Dr. E. R. McNinch, Radiologist of the Kent General Hospital, examined this lesion through the nasopharyngoscope and advised roentgen therapy.

The second patient was a 56 year old white man who was told by his family that his hearing was deteriorating in both ears but particularly in his right ear. His childhood history indicated repeated attacks of otorrhea although no acute ear disease had occurred in the past few years. Examination of the ears revealed clear canals and moderately scarred tympanic membranes with slight retraction. The anterior nares were clear. A view of the nasopharynx showed a large fibrous polyp protruding into the right nasopharynx and covering the right Eustachian orifice. An audiogram showed an air conduction loss in the right ear of 30-35 db. in the lower frequencies dropping to 80 db. at 4000. The left ear averaged 15 db. loss. Removal of the polyp restored the hearing in the right ear to a 15 db. loss for lower frequencies although the high tone loss remained unchanged. Microscopic report by Dr. O. J. Pollak, Pathologist, was fibrous polyp, non malignant.

The above facts lead one to conclude that a careful medical examination in the problem of deafness should be a prerequisite to the fitting of a hearing aid. Had either of these patients gone directly to a hearing aid salesman, the organic lesions that represented the primary etiology would have

* Dover, Delaware.

been overlooked. In the instance of the nasopharyngeal malignancy, any delay in recognizing this tumor and instituting the correct therapy would have unmeasurably decreased the patient's chances for survival.

There is no ready answer to the problem of divided responsibility to the deaf patient. A solution could resolve out of a better appreciation on the part of the hearing aid manufacturer and his representatives as to the true scope of their activity. Non professional advice on medical problems can reach a point beyond which it becomes a detriment rather than an aid to the patient. Accepting a full share of responsibility to the deafened would result in fewer failures in fitting hearing aids and surely uncover a number of contributing

causes that could be improved with treatment. An effort should be made in advertising and sales techniques to direct the hard of hearing to an Otologist for evaluation before a hearing aid is sold.

SUMMARY

- (1) Examination by an Otologist should precede the fitting of a hearing aid.
- (2) Two examples of organic lesions causing deafness for which hearing aids were not indicated were cited.
- (3) Greater responsibility to the patient on the part of the hearing aid manufacturer and his representatives was recommended.

IN THE SUPREME COURT OF THE STATE OF DELAWARE

BARBARA LYNN CHRIS-
TIAN, an infant, by her next
friend, JAMES A. CHRIS-
TIAN,

Plaintiff Below,
Appellant,

-vs-

WILMINGTON GENERAL
HOSPITAL ASSOCIA-
TION, INC., a corporation
of the State of Delaware,

Defendant Below,
Appellee.

No. 23, 1957

(November 8, 1957)

SOUTHERLAND, C.J., WOLCOTT and
BRAMHALL, JJ., sitting.

Writ of Error to the Superior Court of
New Castle County.

Donald W. Booker, of Wilmington,
for appellant.

E. N. Carpenter, II, of Wilmington,
for appellee.

WOLCOTT, J.:

This appeal seeks reversal of a directed
verdict for the defendant at the close of
the plaintiff's testimony in the trial of an
action before the Superior Court against
the defendant hospital, based on the al-
leged negligence of its agent.

The facts may be stated as follows: The
plaintiff, in January, 1953, the time of the
injury, was approximately sixteen months
of age and, while playing in her home, fell
on a glass bottle which broke and cut her
hand severely. The plaintiff was taken by
her parents to the Wilmington General
Hospital and there treated by an intern
then on duty in the emergency ward. At
the time of treatment, the plaintiff was
crying and struggling so that she had to
be held by her parents and a student
nurse then on duty.

The intern examined the wound, treated
it and sewed it up and, in response to a

question by the infant's father, stated that
the tendons of the hand were not severed.
Later, although the testimony is somewhat
confused as to the exact time, the plain-
tiff was again taken to the defendant hos-
pital. This subsequent visit was either four
or ten days following the accident. She was
again examined by the same intern who
noted that a stiffness had developed in the
index finger of her right hand. At this time
the intern did not diagnose the stiffness
as having been caused by a severed tendon,
although, again on this point, the testi-
mony is confused.

Subsequently, a third time, the plaintiff
was taken to the defendant hospital and,
at this time, the plaintiff's parents may
have been advised that the stiffness in the
index finger was caused by a severed ten-
don. In any event, however, in April, 1953,
the plaintiff was examined at the Phila-
delphia Naval Hospital and her parents
advised that the tendon serving the index
finger of her right hand had been severed,
and that an operation would be required to
repair it. As of the date of trial of this
cause, approximately four years following
the injury, the operation has not been per-
formed.

The plaintiff called as witnesses two doc-
tors to testify as experts. The substance

of their testimony with respect to injuries of this type and the treatment customarily followed is set out. In a child of this age the tendon leading to an index finger is approximately the size of a heavy piece of string, perhaps as much as $\frac{1}{8}$ inch in diameter. By visual examination of the wound, it is possible to see the tendon if it has not been severed, but it is also entirely possible, in the case of a small struggling and crying child, that the tendon would not be seen. In the treatment of such a wound, it is routine practice to determine if possible whether or not tendons have been severed, but if the child is uncooperative, it is often-times impossible to determine because diagnosis requires flexion of the finger which, in turn, can be achieved only by the co-operation of the patient.

The doctors testified that when a tendon is divided an operation is invariably required to repair it since a severed tendon will not grow together of its own volition, but tends to withdraw into the wrist after having been severed. They also testified that an immediate operation for a severed tendon is not always performed. Whether or not immediate repair is made, or the operation postponed depends upon a number of factors, such as possible contamination of the wound and, also, in the case of a small child the desirability of permitting normal growth to take place to make subsequent repair by operation easier.

The doctors were agreed that immediate operation is not necessary for the repair of a severed tendon and that postponement of the operation, even for as long as four years, would not result in any permanent disability by reason of the delay. In other words, successful repair of a severed tendon can be made after the lapse of years.

The doctors also testified it was possible, at the time of the initial examination by the intern, that the tendon leading to plaintiff's right index finger was only partially severed, which would not have been discovered by examination, and that the tendon might have ruptured later after the initial treatment, which, if that were the fact, would not have been the cause of the rupture.

Upon this state of the plaintiff's evidence the trial court instructed the jury to return a verdict for the defendant on the ground that it was insufficient to establish a *prima facie* case in the plaintiff's favor because of two deficiencies. The first deficiency was that there was no evidence at all that the intern employed by the defendant had failed to conform to accepted standards of care and treatment prescribed for physicians in the community. And the second deficiency was that there was no evidence offered by the plaintiff that the treatment performed by the intern was the proximate cause of the injury.

Plaintiff now appeals, making two basic arguments for the reversal of the directed verdict, viz., (1) that the plaintiff did offer sufficient evidence of the failure of the intern to conform to the accepted medical standards in the community for the care and treatment of injuries of the nature suffered by the plaintiff; and (2) that in any event the case should have been submitted to the jury by reason of the doctrine of *res ipsa loquitur*.

As a general proposition, a physician, surgeon or dentist is answerable in damages for an injury to a patient resulting from his failure to use the standard knowledge and skill required of doctors, or by reason of his failure to use reasonable care and diligence in the application of such knowledge or skill. 41 *Am. Jur., Surgeons and Physicians*, §104; 70 *C.J.S., Physicians and Surgeons*, §48. However, as in every action based upon negligence, negligence is not presumed but must be affirmatively proven. This proposition is so elementary as to require no citation of authority. Nor does the sole fact that an injury has resulted from a certain treatment raise any presumption of negligence on the part of the attending doctor. See cases annotation, 162 *A.L.R.* 1278.

It is therefore incumbent upon a plaintiff seeking recovery for injury upon the theory that that injury has resulted from faulty medical care given by a doctor to prove the medical standards to which that doctor is required to conform. In almost all cases this standard necessarily must be

established by competent expert testimony since only in the most superficial way can laymen be expected to know the appropriate standards of care to be followed.

In this case the plaintiff attempted to establish the standard which should have been complied with. This was done by the testimony of two admitted experts in the field of treatment of injuries of this nature. It is clear from their testimony that it was entirely possible in examining this patient according to that standard not to ascertain at the time of such examination that a tendon had been severed. It is furthermore clear that the failure to ascertain immediately the severing of the tendon did not result from a failure to conform to the accepted standard and, in any event, that no permanent injury has followed the failure to discover the condition.

It seems clear from the plaintiff's case that the intern at the defendant hospital examined the infant plaintiff as any other doctor in the community would have examined her under like circumstances. There is no evidence that his treatment of the wound and suturing failed in any respect to conform to the established standards for the medical profession.

This being the state of the evidence it is the law that a presumption arises that the doctor in fact exercised ordinary and reasonable care and prudence in the treatment of the wound, when there is no direct evidence to the contrary. *Mitchell v. Atkins*, 6 W.W.Harr. 451, 178 A. 593; 41 *Am.Jur.*, *Physicians and Surgeons*, §127.

We are of the opinion, therefore, that the plaintiff failed to produce affirmative evidence of negligence by direct testimony sufficient to require the trial court to submit the issue of negligence to the jury for its determination.

In this connection appellant argues that it is not necessary to prove the standard of care required of doctors by the testimony of other doctors because of what is said to be an unwillingness on the part of one doctor to charge his professional brother with negligence. It is, of course, obvious that in some instances a jury of laymen

could determine without the testimony of experts that a treatment given was so unrelated to the injury or illness of the patient as to make obvious to anyone the failure of the doctor to exercise acceptable standards of care. But, in the ordinary case of bodily injury, the proper treatment of which would not be known to a layman, we think it necessary to offer the testimony of admitted experts for the guidance of the jury in determining the issue of negligence or non-negligence. In our opinion, the injury of which this plaintiff complains was of such nature as to require a method of treatment not obvious enough to warrant the assumption that a layman, in the absence of expert testimony on the subject, could make an intelligent decision upon the propriety of the treatment given.

Secondly, the plaintiff argues that the issue of negligence should have been submitted to the jury because of the doctrine of *res ipsa loquitur*. This court's predecessor, in *Delaware Coach Co. v. Reynolds*, 6 Terry 226, 71 A.2d 69, stated that the doctrine of *res ipsa loquitur* is available to a plaintiff to take his case to the jury "where the facts and circumstances surrounding the occurrence of the injury warrant the inference of negligence on the part of the defendant". The court went on to say that in order to determine the availability of the doctrine the court must examine the manner in which the alleged injury occurred and then determine whether or not in the usual course of events it would be concluded by reasonable persons that the injury would probably not have occurred except for some negligence on the part of the defendant.

In *Mitchell v. Atkins*, supra, a case seeking to make a dentist respond in damages for the death of a patient in the circumstance that, while extracting a tooth, gas was administered as an anesthetic under the influence of which the patient died, it was held that a count in the declaration alleging no negligence but relying solely upon the doctrine of *res ipsa loquitur* based upon the fact of administration of an anesthetic and subsequent death, was subject to demurrer for failing to state a cause

of action. The court went on to say that it was necessary in such actions to prove a lack of requisite knowledge or skill, or a failure to exercise such, or the use of some instrumentality in treatment of the patient which results in something so inconsistent with the normal and usual result that negligence in the application of the instrument must be pre-supposed.

This case in its best light for the plaintiff is, at most, one of an unfavorable result from the treatment employed. It seems clear in such circumstance that, based upon the unfavorable nature of the result of treatment, no presumption of negligence on the part of the doctor can arise. See *Annotation*, 162 A.L.R. 1281; *Mitchell v. Atkins*, supra; 38 *Am.Jur.*, *Negligence*, §295.

We are of the opinion, therefore, that the trial court was correct in refusing to

submit the issue to the jury on the doctrine of *res ipsa loquitur*.

The foregoing is sufficient to affirm the judgment below. We are not called upon, therefore, to pass upon the additional question of whether or not the plaintiff had successfully shown any casual connection between the treatment given by the intern and the injury. We content ourselves in this respect with saying that we think it clear that the treatment given did not and could not have caused the stiffness in the plaintiff's index finger. That stiffness was caused solely by the severing of the tendon, which was caused in turn by the cut inflicted by the broken bottle and not be the treatment given the plaintiff at the hospital.

The judgment below is affirmed.

WOMAN'S AUXILIARY

REPORT OF THE MENTAL HEALTH COMMITTEE OF THE WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF DELAWARE

The Mental Health Committee of the Woman's Auxiliary to the Medical Society of Delaware has had a very rewarding year.

In New Castle County, a program was devoted to Mental Health this fall. As a result, there are eighteen volunteers from the Woman's Auxiliary working in the State Hospital at Farnhurst three days a week, taking the library carts into the wards.

Two hundred and twenty-five dollars has been designated from the New Castle County group for library supplies. Two hundred and thirty-eight books and numerous magazines have also been donated by this group.

Volunteers have been working in the library cleaning out shelves and unserviceable books. These books will be salvaged for the price the paper will bring.

Recently there have been some pictures taken of volunteers working in the library. These will be used for newspaper publicity.

The State Hospital at Farnhurst is indeed grateful for the efforts of the Woman's Auxiliary to the New Castle County Medical Society.

In Sussex County, the group has been very active in providing toys and books for the hospital for the mentally retarded at Stockley. This is fulfilling a great need. A check for twenty-five dollars has been drawn from the Sussex Treasury and earmarked for the Stockley patients for Easter.

This group has also been sending several local newspapers to the State Hospital at Farnhurst to be used on the library carts. This is of great benefit to the patients in the State Hospital from the lower Delaware counties.

There has been no activity in the Mental Health field in Kent County this year. The group so far is very small, and finds that it must limit its activities to one field and they chose another project this year.

May I take this opportunity to commend the county chairmen for the excellent job they have done in Mental Health so far this year.

Great strides have been made in this too long neglected field.

Respectfully submitted,
(Mrs. G. H. H.) Ione T. Garrison,
State Mental Health Chairman.

RAYMOND T. LaRUE, M.D.

Doctor LaRue was born in Gallipolis, Ohio on March 22, 1895 and died while attending a patient in Wilmington on March 17, 1958.

A graduate of the University of Maryland School of Medicine, Dr. LaRue interned at the Delaware Hospital. He practiced for several years in Michigan before returning to Wilmington in the mid-1920's to become Chief of the Genito-Urinary Service at the Delaware Hospital. At the time of his death he was Consultant in Urology at the Delaware Hospital as well as a member of the staffs of St. Francis, Wilmington General, and Delaware State Hospitals.

He was a member of the Medical Society of Delaware and is survived by his wife, Mrs. Rose LaRue.

1957 ANNUAL REPORT — THE COMMITTEE FOR THE IMPROVEMENT OF PATIENT CARE

HISTORY

The Committee has been meeting regularly for the past three years since its inception on a local basis. It was originally patterned after a national group and is concerned with bringing together physicians, nurses and hospital administrators to discuss problems of mutual interest toward the improvement of patient care.

OBJECTIVES

1. To evolve logical conclusions and to make definite recommendations to parent groups concerning subjects selected for discussion, study and investigation.
2. To review problems of mutual concern and interest to the nurse, the hospital administrator and the physician that arise from the care of the patient.
3. To develop better insight into the problems of the allied professions who have a single goal in mind—"The Patient".

The Committee acts as an advisory body and does not have the power to legislate. Findings or recommendations may be accepted or rejected by any of the participating organizations.

During the past year interest in the work of the Committee has lagged somewhat due to the resignation of one of the hospitals, two of the physicians and the practical nurse representative without replacements being named. Attendance has been relatively poor. The appointment of four new physicians has been announced at the end of the year and a pick-up in attendance is expected. New officers were elected and installed at the regular meeting in December.

BUSINESS OF THE COMMITTEE

The outstanding accomplishment of the year was the institute on "Human Relations in the Hospital" which was held on

October 21, 1957, in the Hotel du Pont in Wilmington. Two outstanding speakers, Brig. General Don C. Faith and Dr. B. H. Jarman, both of George Washington University, discussed "Basic Elements of Human Relations", "Communications in Human Relations", "Application of Human Relations", and "Motivation of Human Relations" before a group of 128 representatives of hospitals, medical societies, nurses organizations and other allied fields. This institute was planned and activated by the Committee for the Improvement of Patient Care with the approval and sponsorship of the Tri-State Hospital Association.

A Supervisory Training Program was set up by the University of Delaware in conjunction with this Committee and twelve representatives from Delaware Hospital and four from the Memorial Hospital attended the six sessions. There was some difference of opinion as to the value of this program, but it was generally agreed that those in attendance had gained from the experience and had carried over to their work a new philosophy toward their job and fellow workers. The program is expected to be repeated and extended.

The Social Service Exchange and its function with the hospitals was discussed with the hope that more use could be made of this organization in preventing duplication of service in the hospitals and in giving better service, particularly to OPD patients. The extension of activities on the part of this agency is dependent upon community funds and nothing further has developed.

A study of the Private Duty Nurse Registry has been made in an effort to improve the services rendered and to overcome certain weaknesses in the present organization of the Registry. A consultant from the American Nurses Association visited Wilmington and conducted a survey of the local situation and has submitted recommendations. Other changes have also

been suggested by the Directory Committee of the Delaware State Nurses Association. Reorganization plans continue.

Identification of practical nurses on the floors by means of an arm patch was recommended so that all hospitals would have uniform requirements. This is now in effect.

A training program in "Discussion Leading" is under consideration and preliminary details are being worked out with representatives of the Du Pont Company. This program will be offered to the local hospitals.

It was agreed to invite the administrator of the Veterans Hospital to become a member of this committee.

Uniformity in hospital procedures is to be part of future agenda of the meetings and this Committee will endeavor to work in a liaison capacity to coordinate and standardize recommendations of existing working committees from other groups.

MEMBERS OF THE COMMITTEE

HOSPITALS (Association of Delaware Hospitals): Memorial, Mr. Charles E. Vadakin, Chairman; Delaware, Mr. R. R. Griffith; Wilmington General, Mr. Leo G. Schmelzer; St. Francis, Resigned; Secretary, Mr. J. A. Rockwell.

NURSING (Delaware State Nursing Organizations): Delaware State Nursing Association, Miss Dorothy Hufcut, Miss Therese M. Curran, Miss Dorothy B. Ranck; Delaware League for Nursing, Miss Ruth Curry, Vice-Chairman; Delaware Licensed Practical Nurses Association (vacant).

PHYSICIANS (New Castle County Medical Society): Memorial, Dr. Edward S. Parvis; Delaware, Dr. Ward W. Briggs; Wilmington General, Dr. David Platt; St. Francis, Dr. Thomas V. Hynes.

Respectfully submitted,
J. A. ROCKWELL
Secretary

ANNOUNCING A NEW AWARD FOR MEDICAL WRITING

The Editors of MODERN MEDICAL MONOGRAPHS, a quarterly publication, announce an award for the best unpublished manuscript for a short book on a clinical subject in the field of internal medicine. The purpose of this award, which will be known as the MODERN MEDICAL MONOGRAPH AWARD, is to stimulate young physicians to communicate their work in the classical form of the monograph and to achieve high standards of medical writing. The winner of this competition will receive five hundred dollars. In addition, the winning monograph, if found suitable, will be published as a book in the series MODERN MEDICAL MONOGRAPHS. The generosity and cooperation of Dr. Henry M. Stratton, President of Grune and Stratton, Inc., publishers of the series, have made this award possible.

The entries will be judged for style and clarity of expression by a committee of the American Medical Writers' Association and for clinical interest and scientific value by the Editors and Advisory Board of MODERN MEDICAL MONOGRAPHS.

RULES:

1. The author, or authors, must be a graduate physician, less than 40 years of age. Single authorship is preferred, but two co-authors will be acceptable. The name of the medical school from which the author graduated and his date of graduation should be stated.
2. Manuscripts should be submitted in duplicate (original and one copy) by registered mail, postmarked *not later than October 1, 1958*, to Richard H. Orr, M.D., 37 East 67th St., New York 21, New York.
3. The manuscript, including the bibliography, must consist of between 115 and 200 double-spaced typewritten pages with ample margins and not more than 40 illustrations (figures or photographs). For each illustration used, the allowable upper limit of typewritten manuscript pages should be reduced by one.
4. Fishbein's book, "Medical Writing" (third edition), should be followed in preparation of the manuscript, use of abbreviations, and bibliographic form.

Richard H. Orr, M.D.
Consulting Editor

Irving S. Wright, M.D.
Editor-in-Chief

+ Editorials +

FORAND BILL

Last month's issue of the Journal discussed the latest significant proposal to amend the Federal Social Security System to advance the cause of compulsory national health insurance. The Forand Bill (H.R. 9467), which proposes that surgical and hospital service to recipients of Social Security old age and survivors benefits shall henceforth be at government expense, was analysed and related to the continuing movement of which the Wagner-Murray-Dingell Bills were the most significant and frank manifestations.

The American Medical Association has recently mailed to its component State Societies a very interesting reprint of a news story in the New York Times. Headlined "AMA Opposition to U.S. Aid Scored", the article is a summary of a vitriolic attack upon the AMA stand against the Forand Bill, which is unquestionably a virulent threat to private practice. Characterizing it as "witch doctors exorcising the evil spirit, socialized medicine", Eveline M. Burns, Ph.D., told a group representing the American Public Welfare Association that the AMA is taking "a narrow and self-interested view of the social responsibilities of the profession".

Speaking as the President of the National Conference on Social Welfare, Dr. Burns lamented that little progress has been made in the last 10 or 15 years in Social Security, and that the country has moved so slowly toward more complete elimination of so-called "risk areas" which are now the responsibility of the individual. While stating that she believes that nothing short of National Health Service (presumably resembling Britain's) could meet the problem of patient care in the United States, she conceded that this probably would not come soon. Unfortunately, she

said, the attitudes of crucial professions have often hampered social legislation.

We find two highly interesting if not encouraging facets of Dr. Burns' address. First of all, Dr. Burns is Professor of Social Work at the New York School of Social Work of Columbia University, and is presumably instilling her more or less bright and dedicated young pupils with her conclusions on the necessity for national compulsory health insurance. We can, therefore, expect increased pressure for this as time goes by. Certainly, this does not imply that Dr. Burns is an isolated phenomenon. It is our impression that compulsory health insurance is a pet subject of social academicians everywhere.

Secondly, and not less important, Dr. Burns has pointed out at least as well as could the Forand Bill's most fervent opponent the dangers inherent in this legislation. The Forand Bill is aimed at chipping away the barrier the medical profession has erected between itself and the precipice of socialism. These politically palatable capsules can kill free medicine as surely as could a single massive dose. It would be the height of fatuity to fail to take a positive, energetic stand against them as they arise.

Several hospitals in Delaware, as well as the American Hospital Association, have officially opposed the Forand Bill. They have recognized that although care for the aged is a major health problem, the Forand approach is neither economically, psychologically nor sociologically justifiable. The Journal views this stand on the part of the hospitals, who certainly are intimately acquainted with the financial problems of the aged ill, with sincere respect.

It is our hope that the medical profes-

sion of Delaware will not be less actively intelligent in informing our Representative-at-Large, Mr. Harry S. Haskell, of our feelings, individual as well as, collective, regarding this pernicious legislation. Mr.

Haskell's address is:

Representative Harry S. Haskell
Congress of the United States
House of Representatives
Washington 25, D. C.

KNOW WHEREOF YOU SPEAK—

Insurance is a large and growing business. Rules, regulations, and types of policies sold constantly change.

Recently, physicians in a small Southern town, sincerely and in good faith, advised two of their patients to drop accident and health policies they had been carrying. One patient was diabetic and the other had

a myocardial infarction. The physicians reasoned that their patient's histories of disability would prevent them from collecting claims. This advice, although logical and well-intentioned, was erroneous and was a disservice to the patients.

We should be careful to have all facts available before giving advice.

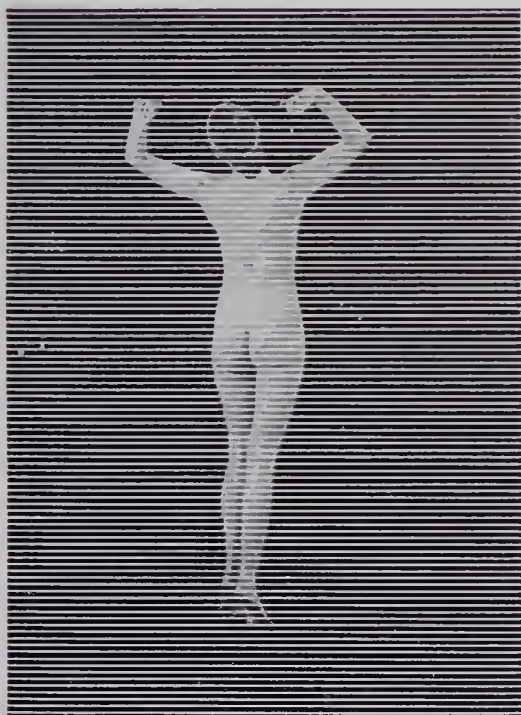
LEGAL DEFINITION

The Supreme Court of the State of Delaware has clearly defined the relative responsibility of the practicing physician, the

intern, and the hospital in a decision reprinted in this issue. This decision is of importance to all of us.

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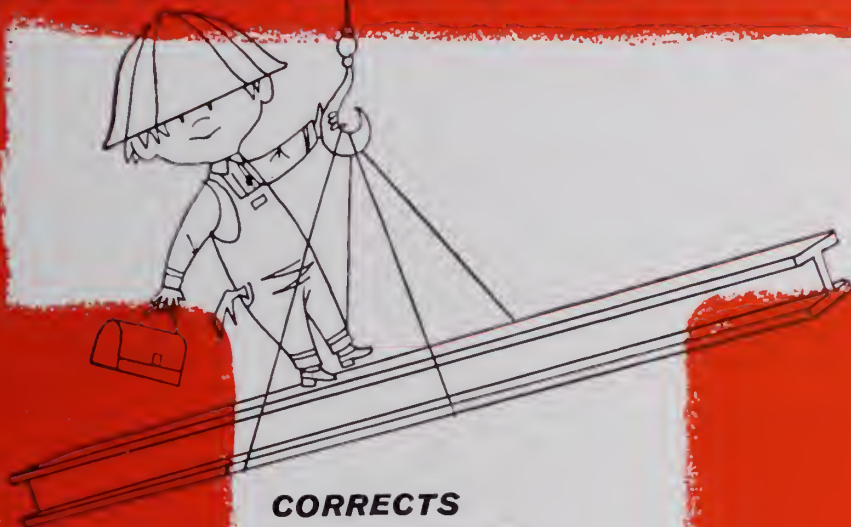
1. Russek, H. I.: Postgrad. Med. 19:562 (June) 1956.

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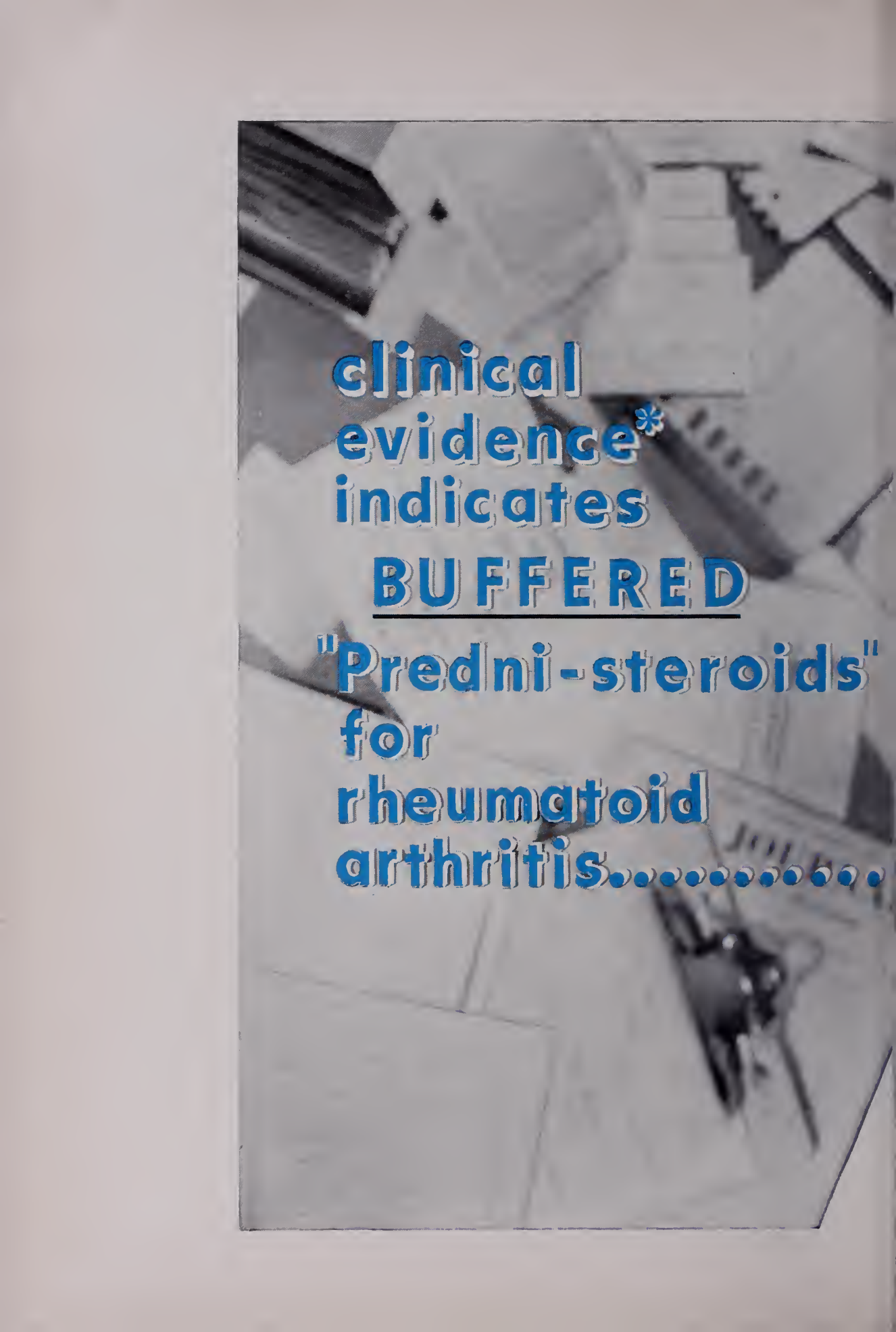


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Pyridoxine HCl (B ₆)	5 mg.
Alcohol	0.75%

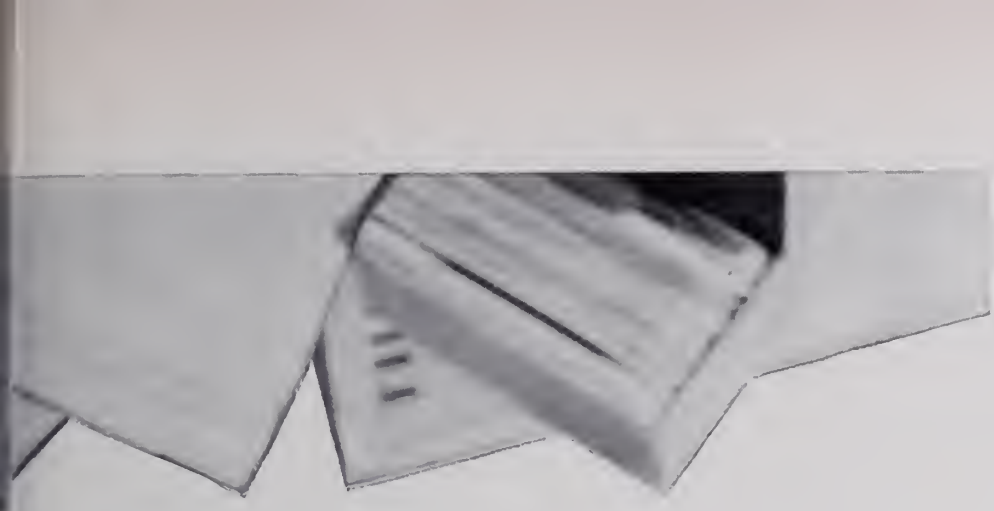
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*"It is our growing conviction that all patients receiving oral steroids should take each dose after food or with adequate buffering with aluminum or magnesium hydroxide preparations."—Sigler, J. W. and Emswiler, D. C.: *J. Kentucky State M.A.* 51:771 (Sept.) 1956.

*"The apparent high incidence of this serious [gastric] side effect in patients receiving prednisone or prednisolone suggests the advisability of routine co-administration of an aluminum hydroxide gel."—Bollet, A. J. and Bunim, J. J.: *J. A. M. A.* 158:159 (June 11) 1955.

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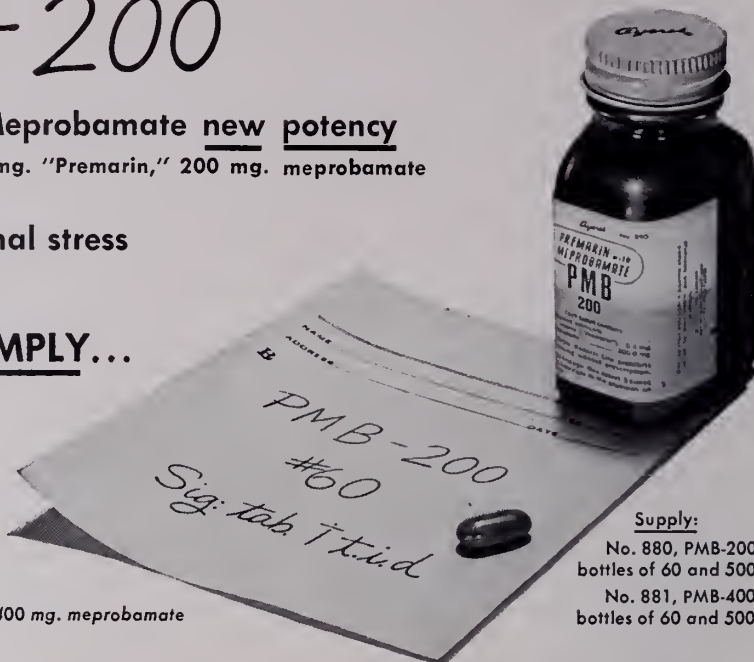
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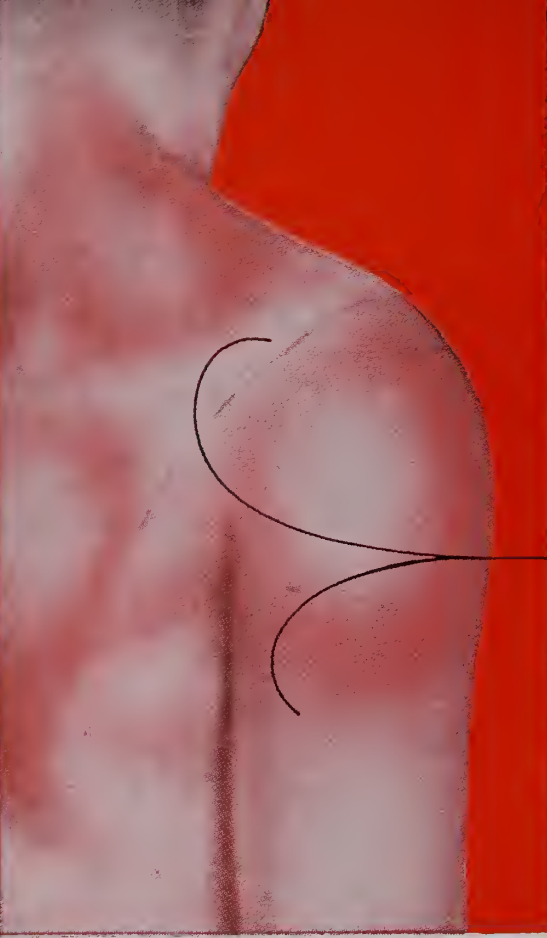
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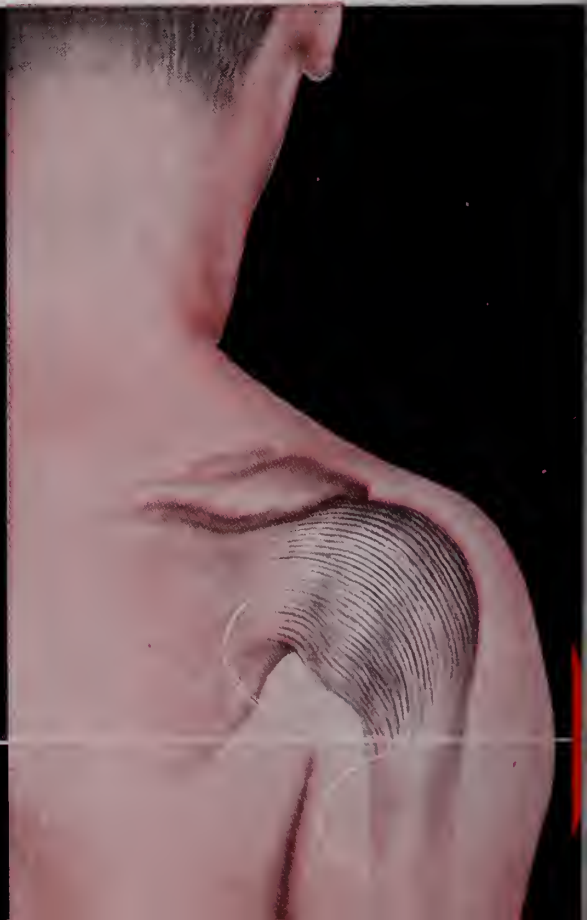
references: 1. Strub, I. H.: Personal communication. 2. Ayd, F. J., Jr.: presented at Ohio Assembly of General Practice, 7th Annual Scientific Assembly, Columbus, September 18-19, 1957.



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1. Comroe's Arthritis: Hollander, J. L., p. 149 (Fifth Edition, Lea & Febiger, Philadelphia, Pa. 1953).
2. Merck Manual: Lyght, C. E., p. 1102 (Ninth Edition, Merck & Co., Inc., Rahway, N. J. 1956).

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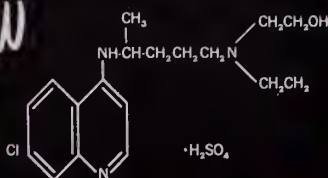
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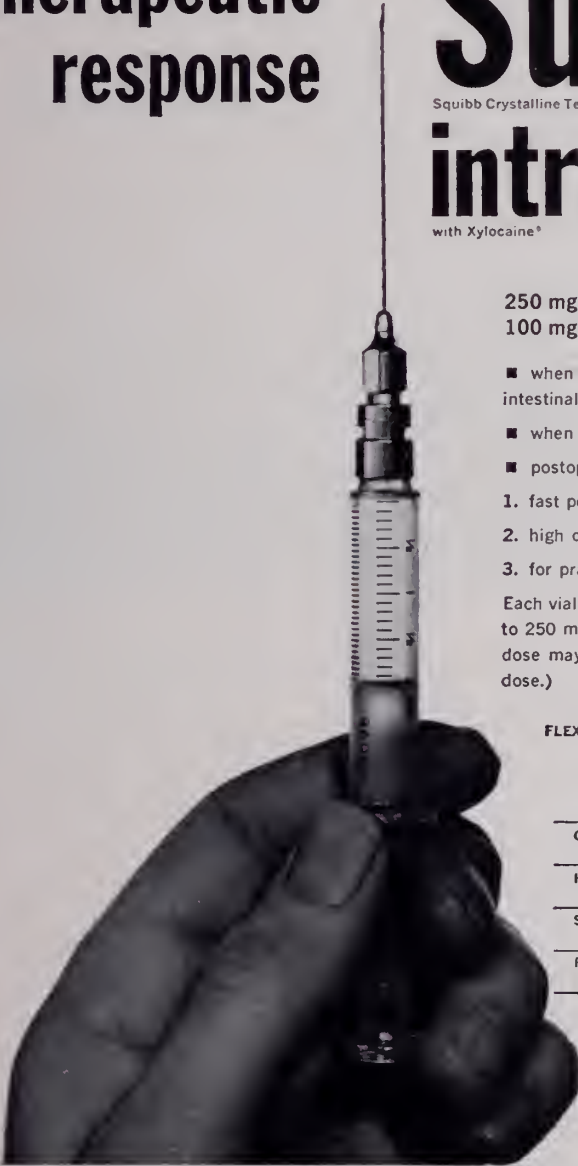
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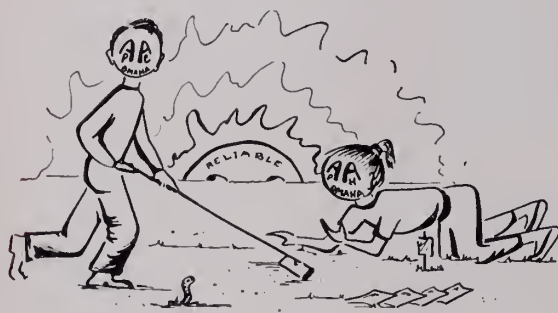
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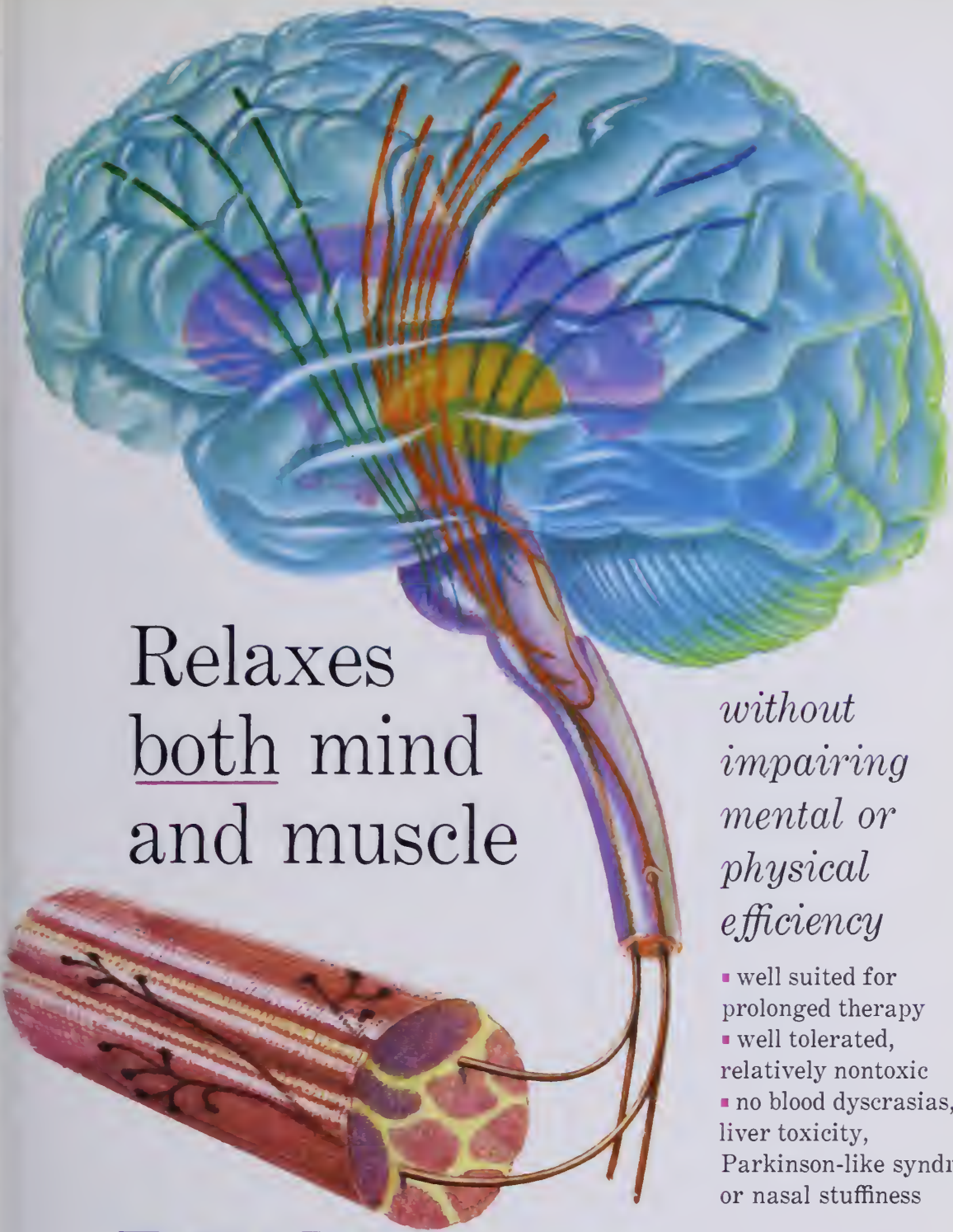
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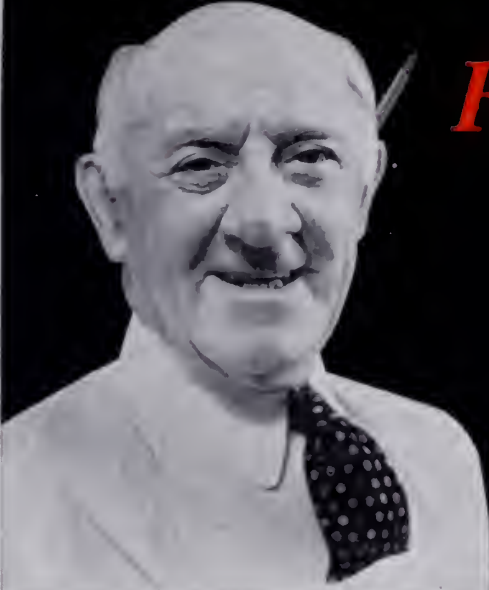
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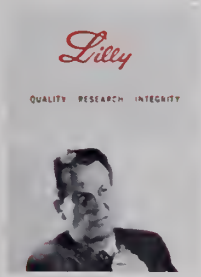
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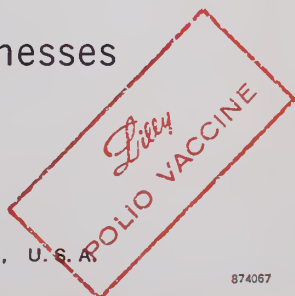
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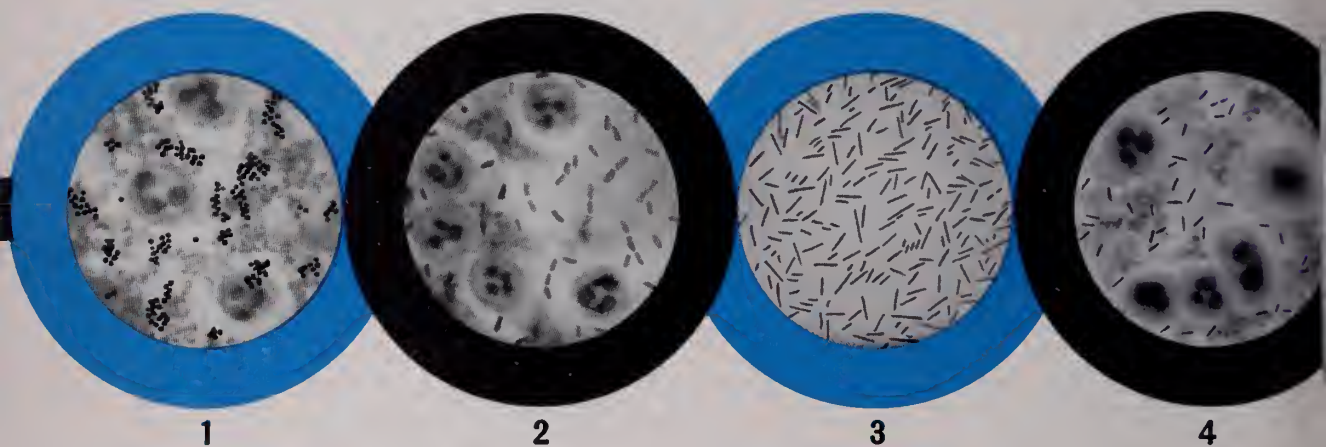
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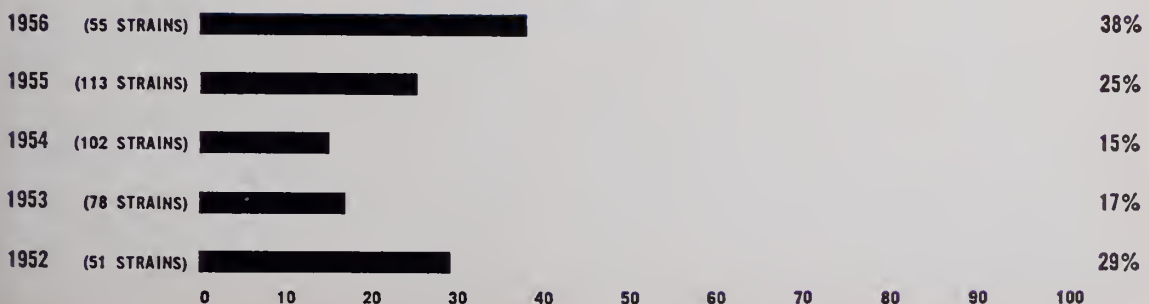
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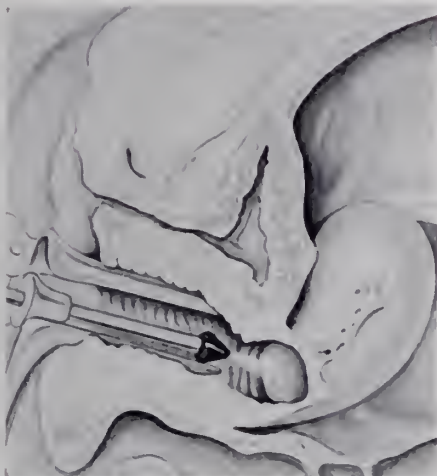
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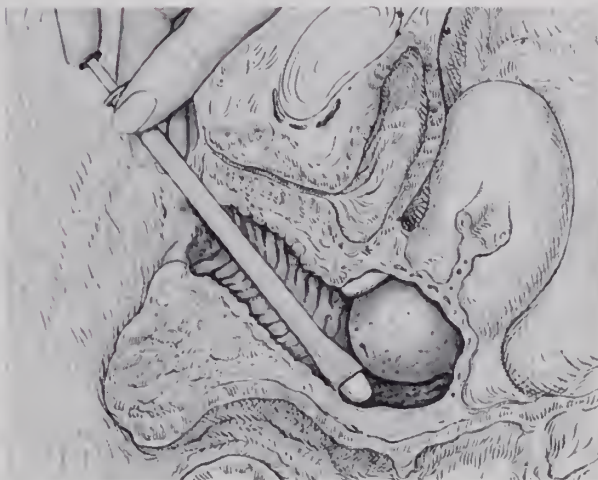
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*Williamson, P.: Trichomonad Infestation, M. Times 84:929 (Sept.) 1956.

SEARLE

When tetracycline therapy is indicated—

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Standard formulas for WELL INFANTS

Since age, appetite and digestive capacity vary, hospital practice favors an individualized formula for each infant.

The total daily feeding usually amounts to 2 ounces of milk *per pound of body weight*, plus 1 ounce of Karo Syrup with enough water to satisfy fluid requirements.

The newborn usually takes from 2 to 3 ounces of formula per feeding; the very young infant, 4 to 5 ounces—the daily quota yielding over 50 calories for each pound the infant weighs. The quantity per feeding should not exceed 8 ounces.

Newborns are fed at 3 to 4 hour intervals throughout the 24-hour period—the 2 or 3 A.M. feeding is discontinued after the neonatal period. In the third or fourth month the 10 or 12 P.M. feeding is discontinued, once the infant fails to awaken for the bottle. Standard but individualized formulas which constitute the hospital infant feeding regimen are shown here.

WHOLE MILK FORMULAS

Age Months	Cow's Milk Fluid Oz.	Water Oz.	KARO Tbsp.	Each Feeding Oz.	Feedings In 24 Hrs.	Total Calories
Birth	10	10	2	3	6	320
1	12	13	2½	4	6	390
2	15	13	3	4½	6	480
3	17	9	3	5	5	520
4	20	11	3½	6	5	610
5	23	11	4	6½	5	700
6	26	10	4	7	5	760

EVAPORATED MILK FORMULAS

Age Months	Evap. Milk Fluid Oz.	Water Oz.	KARO Tbsp.	Each Feeding Oz.	Feedings In 24 Hrs.	Total Calories
Birth	6	12	2	3	6	380
1	8	16	3	4	6	532
2	9	14	3	4½	5	576
3	10	15	3½	5	5	650
4	12	18	4	6	5	768
5	12	21	4	6½	5	768
6	13	22	4	7	5	768

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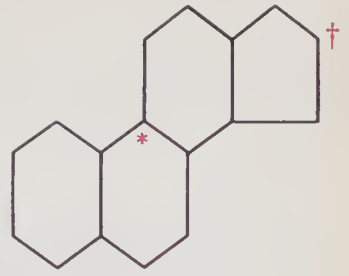
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◊ **a new high** in anti-inflammatory effects with lower dosage
 (averages $\frac{1}{3}$ less than prednisone)

◊ **a new low** in the collateral hormonal effects associated
 with all previous corticosteroids

- ◊ No sodium or water retention
- ◊ No potassium loss
- ◊ No interference with psychic equilibrium
- ◊ Low incidence of peptic ulcer and osteoporosis

Biological Effects of Aristocort

with
particular emphasis
on:

Kidney function

Animal studies on ARISTOCORT¹ have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.¹ Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.² Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.³ Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.^{4,5} In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.^{6,7}

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.¹ Potassium balance studies in humans^{2,3} revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.^{6,7}

Calcium and phosphorus

Phosphate excretion in animals¹ was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies³ demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.³ At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.^{2,3}

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.⁸



Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet¹ and cottonball⁹ tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.¹⁰ Clinical studies¹¹ of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.¹² The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.¹

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

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The Promise of Aristocort

in Reduction of Side Effects

It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are reported below.

Peptic Ulcer

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case¹). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,² and toxic syndromes producing even convulsions and death.³

Since the onset of these complications is not directly related to duration of steroid administration,⁴ the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.⁵ Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.^{1,6}

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.^{7,8} Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.¹ These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, light-headedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushinoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,⁹ 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),⁵ and in inflammatory and allergic skin diseases (33-50 per cent).^{10,11}

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in lower incidence of major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort

in Rheumatoid Arthritis

ARISTOCORT therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.

Significant is the fact that most patients were severe arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates¹ treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of ARISTOCORT sufficient to control arthritic symptoms.*

Hartung² treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Respiratory Allergies

◊ About 200 patients with respiratory allergies have been treated with ARISTOCORT for continuous periods up to eight months.

Results of treatment

Sherwood and Cooke^{1,2} gave ARISTOCORT to 42 patients with bronchial asthma and allergic rhinitis. Average dose needed to control the asthmatic group was approximately 6 mg. per day (range, 2 to 14 mg.). Results, which were called "good to excellent" in all but four, were achieved on one-third less than similarly effective doses of prednisone or prednisolone.

The investigators noted other major improvements in ARISTOCORT therapy over the older steroids. There was no increase in blood pressure in any patient: *on the contrary, in 12 patients, there was reduction of pressure when they were transferred to ARISTOCORT.* One patient had required auxiliary antihypertensive drug therapy; over a nine-week period on ARISTOCORT, the pressure gradually fell from 206/100 to 136/79. In another case, the pressure slowly dropped from 205/105 to 154/86.

The number of cases in which these investigators tried ARISTOCORT in allergic rhinitis was not large enough to provide significant averages. However, the range of effective therapy was from 2 to 6 mg. per day. These strikingly low daily doses resulted in control of all signs and symptoms.

Schwartz³ treated 30 patients with chronic, intractable bronchial asthma. At an average daily dose of 7 mg., he reported "good to excellent" results in all but one. Spies,⁴ Barach⁵ and Segal,⁶ reported similar results at average daily maintenance doses of 4 to 10 mg. of ARISTOCORT.

Dosage and course of therapy

The initial dosage range recommended is 8 to 14 mg. of ARISTOCORT daily. Although a rare, very severe case may require more than this on the first day of therapy, these dosages will usually result in prompt alleviation of dyspnea, wheezing and cyanosis. Patients are soon able to carry out a normal span of daily activity.

The maintenance level is arrived at by reduction of the total daily dose every three days in decrements of 2 mg.; in the over-all series, the average daily dose for bronchial asthma is approximately 8 to 10 mg. and for allergic rhinitis, 2 to 6 mg. per day. All total daily doses should be divided into four parts and given with meals and at bedtime. As in every condition where corticosteroids are employed, each patient's treatment should be individualized and the maintenance arrived at by careful titration against signs and symptoms of disease.

Patients with chronic bronchial asthma may require steroid therapy for several months. And since asthma may be associated with cardiac disease, especially in the older age groups, ARISTOCORT is particularly useful because of its ability to cause excretion of sodium and water.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Nephrotic Syndrome

◊ Fourteen patients with the nephrotic syndrome have been treated with ARISTOCORT for continuous periods of up to six weeks.

Results of treatment

Hellman and associates^{1,2} noted that ARISTOCORT, because of its favorable electrolyte effects, may well be the most desirable steroid to date in treatment of the nephrotic syndrome. However, thus far its use has been reported in only 14 children, of whom 8 had a complete diuresis and disappearance of all abnormal chemical findings. Four of the patients had diuresis, but continued to show some abnormal chemical findings, while two patients with signs of chronic renal disease failed to respond.

Dosage and course of therapy

In order to produce maximal response, 20 mg. should be given daily until diuresis occurs. The dose should then be decreased gradually and maintained around 10 mg. a day. After the patient has been in remission for some time, it may be advisable to diminish the dose gradually and discontinue ARISTOCORT.

in Pulmonary Emphysema and Fibrosis

◊ Eleven patients with pulmonary emphysema and/or fibrosis were treated with ARISTOCORT for continuous periods of over two months.

Results of treatment

Only small series of cases observed by Barach,³ Segal,⁴ and Cooke,⁵ are available. Barach treated patients who were not adequately controlled by prednisone, with the same dose of ARISTOCORT with significant improvement.

Dosage and course of therapy

The initial suppressive dose range recommended is 10-14 mg. daily. Frequently, there is a prompt decrease in cyanosis and dyspnea, with increase in vital capacity.

The average maintenance dose level was 8 mg. a day. If it is desired to maintain a patient on continuous therapy for some months, dosages as low as 2 mg. a day have been successful. All decreases in dosage should be gradual and at a rate of 2 mg. decrements in total daily amount, every two to four days. The daily dosage is divided into four parts and given with meals and at bedtime.



in Neoplastic Diseases

○ Forty-four children and adults have been given ARISTOCORT for palliative treatment of acute leukemia, chronic lymphatic leukemia, lymphosarcoma, lympholeukosarcoma and Hodgkin's disease.

Results of treatment

Farber⁶ has treated 22 children with acute leukemia for an average of three weeks. Of the 17 observed long enough to judge the efficacy of the medication, he rated five as excellent, three as good, two as fair and seven as poor responses.

Hellman and associates⁷ gave ARISTOCORT to a group of patients with the various lymphomas in doses of 40 to 50 mg. a day—occasionally up to 100 milligrams. Treatment was continued in some cases for 17 weeks. Response was classified as good for the palliative purposes for which the drug was given.

Dosage and course of therapy

Massive initial suppressive doses of 40 to 50 mg. per day in children (1 mg./kg./day) and up to 100 mg. a day in adults have been administered.

Responses to any specific dosage in these conditions vary so widely that only a general dosage range can be indicated. Treatment

must be individualized; rate of reduction in dosage and determination of maintenance levels cannot be categorized.

Miscellaneous

Patients with various other diseases have been treated by several clinical investigators. These include patients with osteoarthritis, acute bursitis, rheumatic fever, spondylitis, other "collagen-vascular" diseases (dermatomyositis, etc.), thrombocytopenic purpura, chronic eosinophilia, hemolytic anemia, diuretic-resistant congestive heart failures, and adrenogenital syndrome.

There have not been sufficient patients in any of the above categories to permit definitive treatment schedules to be finally established for ARISTOCORT. Additional studies are now in progress and physicians desiring information on any of these diseases are requested to write to Lederle Laboratories, Pearl River, New York for available data.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Inflammatory and Allergic Skin Diseases

Over 200 patients with allergic and inflammatory skin diseases (including psoriasis, atopic dermatitis, exfoliative dermatitis, pemphigus, dermatitis herpetiformis, eczematoid dermatitis, contact dermatitis and angioneurotic edema) have been treated continuously with ARISTOCORT for periods of up to eight months.

Results of treatment

Rein and associates¹ treated 26 patients with severe dermatitis. Twenty-four had been on prednisone when changed to ARISTOCORT. While some had found satisfactory symptomatic relief, others had also developed side effects—moon face, buffalo hump, increased appetite with excessive weight increases and gastro-intestinal disturbances.

These investigators determined the equivalent dosage of ARISTOCORT to be approximately two-thirds that required to control symptoms on the previous corticosteroid. Thirteen of the 26, who had developed moon face, noted either an actual decrease or no further increase when transferred to ARISTOCORT. In addition: *Voracious appetites disappeared, with loss of weight in 11 patients; there was no elevation in blood pressure, and no necessity to restrict sodium or administer supplemental potassium.* Sherwood and Cooke,² and Shelley and Pillsbury³ obtained similar results in allied disorders.

Hollander⁴ first observed that ARISTOCORT appears to have striking affinity for the skin and great activity in controlling such diseases as psoriasis, for which other corticosteroids have been indifferently effective. Shelley and Pillsbury,³ in 50 cases of acute extending psoriasis found that over 60 per cent were markedly improved.

Dosage and course of therapy

The recommended initial suppressive dose range is 14 to 20 mg. per day. In very severe cases, temporary dosages up to 32 mg. a day

have been successfully employed. Once lesions are suppressed, gradually reduce dose to the maintenance level—which may be as low as 2 mg. per day.

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in Disseminated Lupus Erythematosus

Forty patients with disseminated lupus erythematosus were treated with ARISTOCORT for continuous periods of up to nine months.

Results of treatment

Patients have responded very promisingly to therapy. Dubois¹ has had the largest single experience (28 cases) with ARISTOCORT in the treatment of this disease. He reported 25 of the 28 responded favorably.

Freyberg,² Hartung,³ Hollander,⁴ Spies,⁵ and Segal,⁶ each in smaller series of cases, reported similarly good therapeutic responses.

Dosage and course of therapy

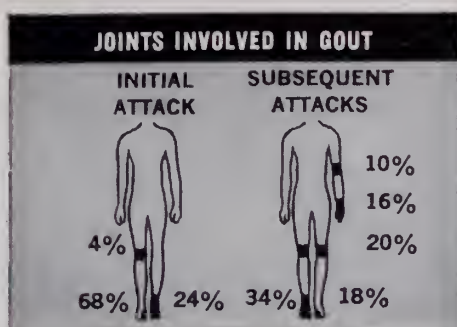
The initial suppressive dose recommended is 20-30 mg. daily. Once the desired effect is achieved, the dose should be reduced gradually to maintenance levels (3 to 18 mg. per day).

In severely ill patients large doses may be required for several days in order to preserve life. Even on these large doses, edema and sodium retention have not occurred.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

Bibliography

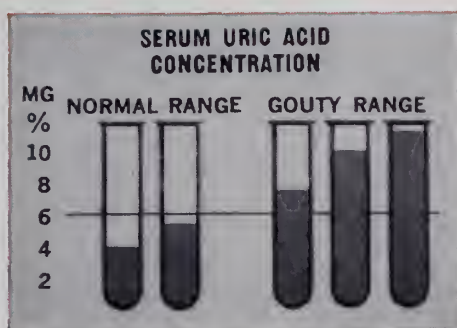
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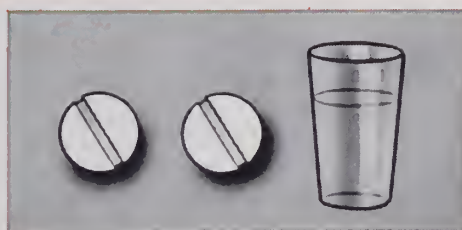
1. Recurrent joint pain followed by long periods of complete remission. (Percentages refer to incidence.)



2. Enlargement of bursae such as in this case involving the olecranon bursa.



3. Elevated serum uric acid levels.



4. Colchicine test: full dose (0.5 mg.) every 1 to 2 hours until pain is relieved or nausea, vomiting or diarrhea occur. The test requires usually 8 to 16 doses. Pain relief is highly indicative of gout.

FROM THESE FINDINGS...SUSPECT GOUT:

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A SPECIFIC FOR GOUT

Once findings point to gout, long-term management can be started with BENEMID. This effective uricosuric agent has these unique benefits:

- Urinary excretion of uric acid is approximately doubled.
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- Uric acid deposits (tophi) in tissues are mobilized.
- Formation of new tophi can often be prevented.
- Fewer attacks and severity is reduced.

RECOMMENDED DOSAGE: 0.25 Gm. (½ tablet) twice daily for one week followed by 1 Gm. (2 tablets) daily in divided doses.

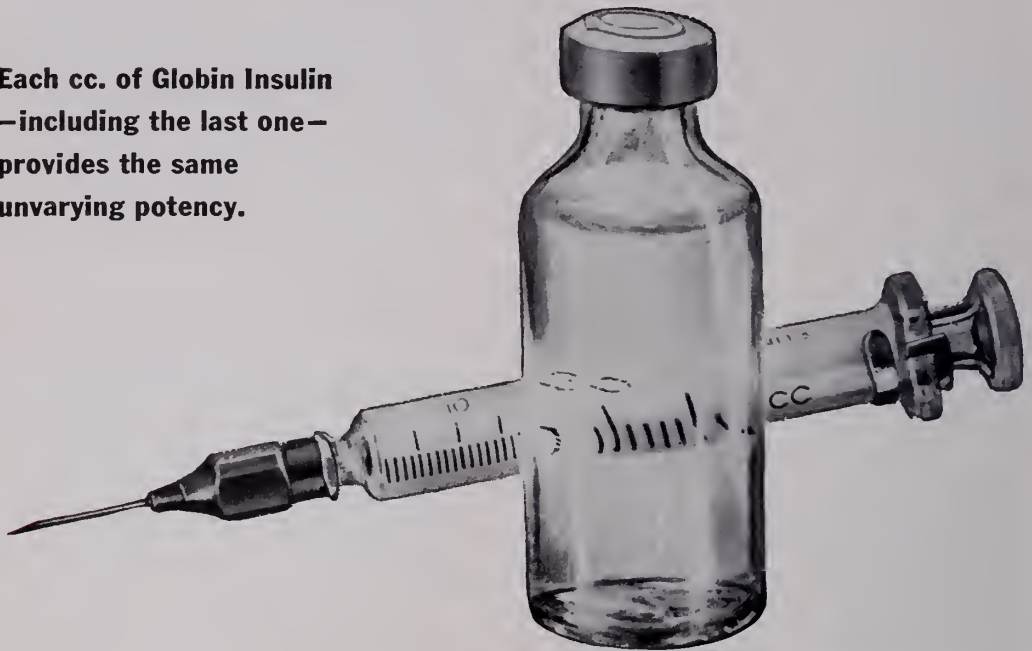
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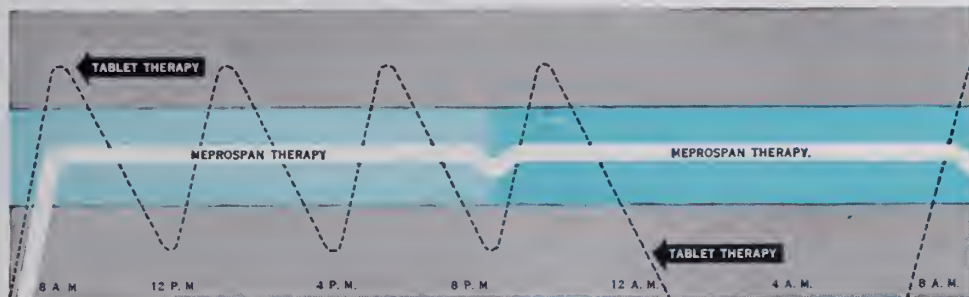
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why ATARAX? *For ataractic effect:* One of the most effective—and probably the safest—of tranquilizers, ATARAX frees the angina patient of his constant tension and anxiety. Ideal for the on-the-job patient. And ATARAX has a unique advantage in cardiac therapy: it is anti-arrhythmic and non-hypotensive.

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1. Russek, H. I.: Postgrad. Med. 19:562 (June) 1956.

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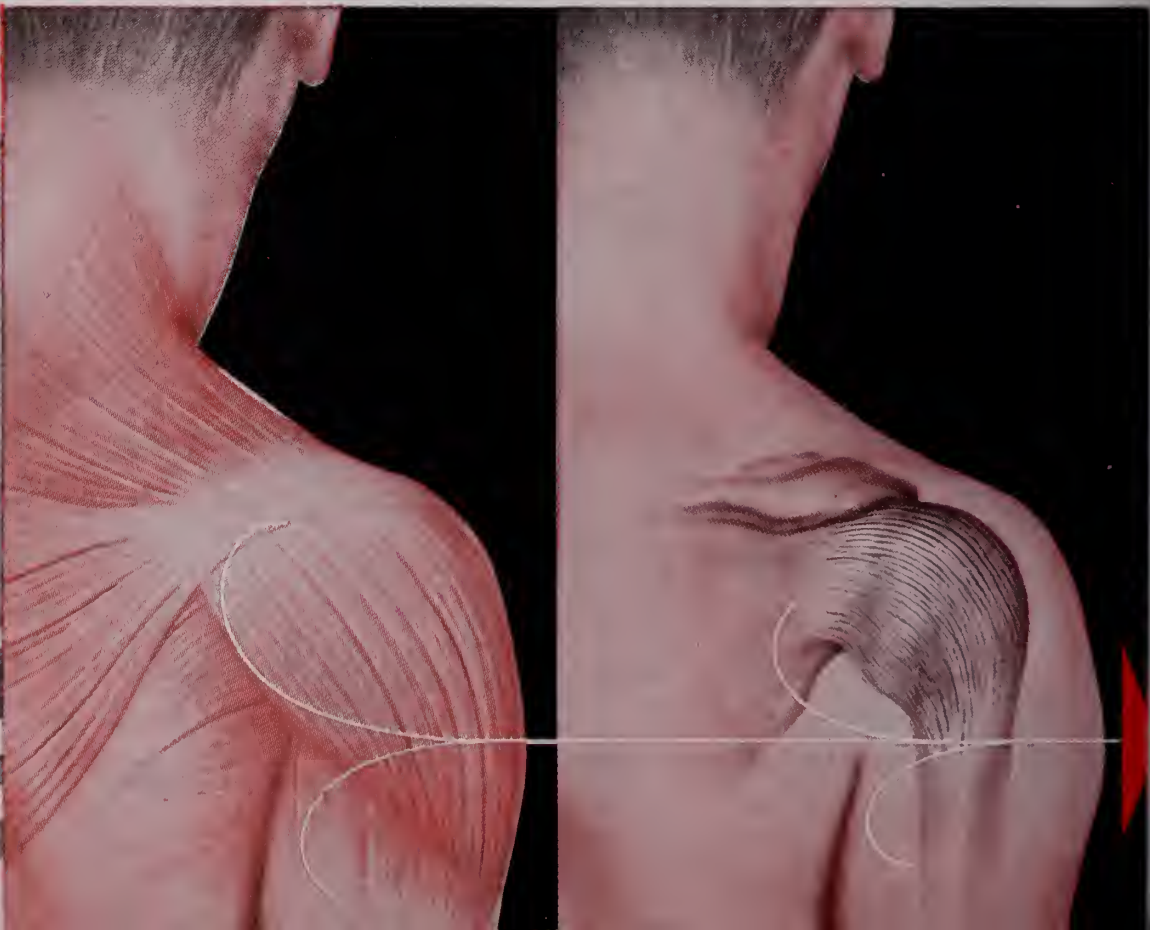
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"Rheumatoid arthritis is a constitutional disease with symptoms affecting chiefly joints and muscles."¹ "Pain in the affected joint is accompanied by splinting of the adjacent muscles, with resultant 'muscle spasm.'"²



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MEPROLONE is the only anti-rheumatic-antiarthritic designed to relieve simultaneously (a) muscle spasm (b) joint-muscle inflammation (c) physical distress . . . and may thereby help prevent deformity and disability in more arthritic patients to a greater degree than ever before.

SUPPLIED: Multiple Compressed Tablets in bottles of 100, in three formulas:

MEPROLONE-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel.

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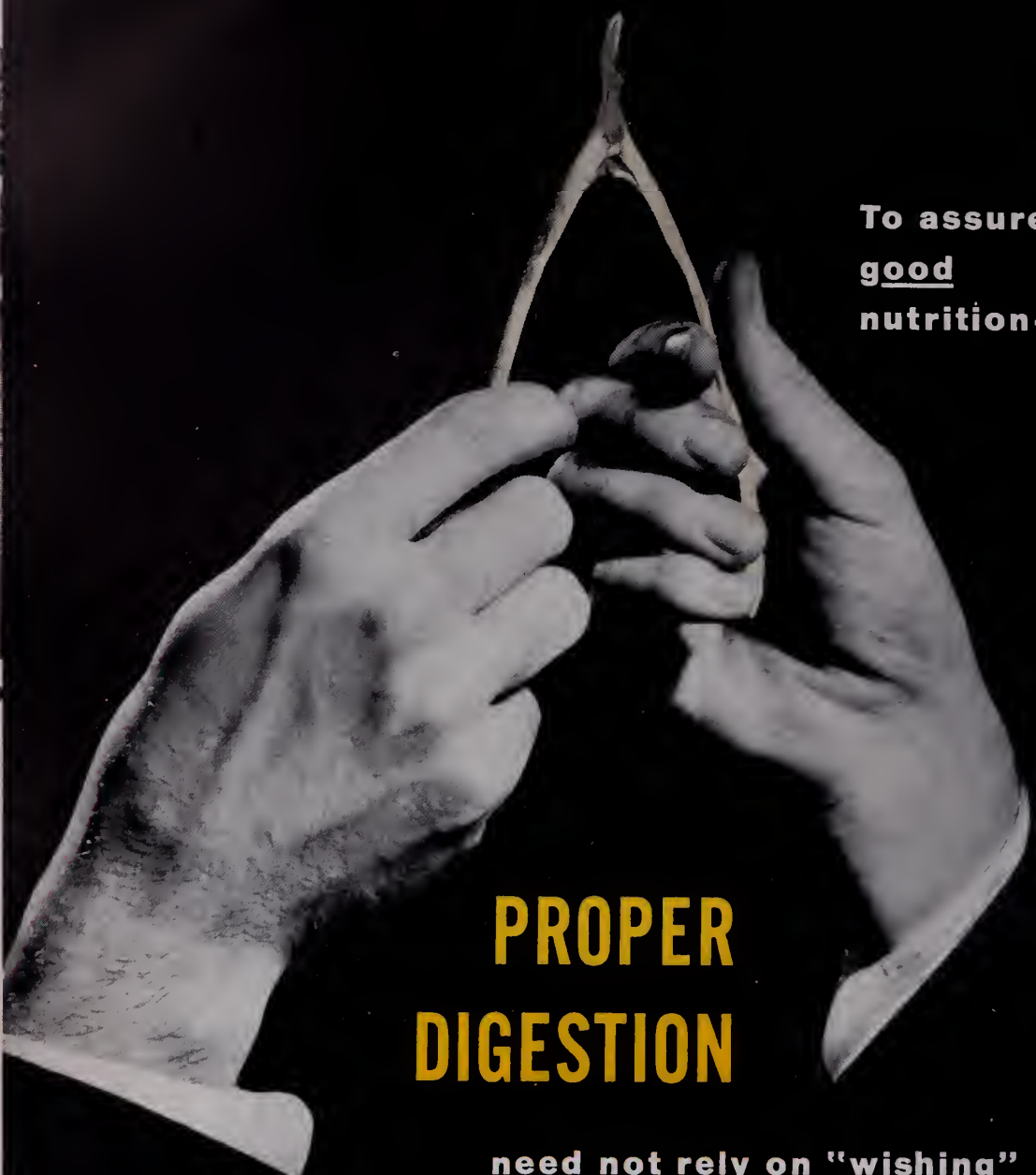
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than capsules containing either the corresponding base or the hydrochloride alone. In addition, the average levels derived from the tetracycline base or the chlortetracycline base were higher than those produced by the corresponding hydrochloride though lower than those resulting from the mixture containing the base and sodium metaphosphate. In the study with chlortetracycline⁶ capsules containing a mixture of the hydrochloride and sodium metaphosphate were also included in the crossover, and the average levels produced by these capsules were the same as with the mixture of chlortetracycline base with sodium metaphosphate.

Although the enhancement of blood levels of tetracycline by phosphate, either complexed to the tetracycline or mixed with the base or the hydrochloride, thus seemed fairly well established, some doubts still remained because certain reliable observers (including many whose results have not been published) failed to confirm the findings with the materials and methods they used. Further confusion seemed to be added by a subsequent report of Welch et al.,⁷ who, in repeating a crossover study with capsules of tetracycline phosphate complex and tetracycline hydrochloride with and without sodium metaphosphate, found much higher

in lower, and sodium metaphosphate in higher, serum antibacterial activity than was observed in their absence. Oil and sorbitol did not interfere with tetracycline absorption.

Dicalcium phosphate is widely used as a filler in various capsules, including those of the tetracyclines. The authors cite a large number of other studies that implicate the presence of calcium ions as the cause of the reduced absorption of tetracyclines and show that citric acid can partially neutralize this effect. The depressing effect of food on the serum levels of tetracycline is likewise explained by the goodly amount of minerals contained in commercial laboratory diets, and they postulate that the multivalent cations may be responsible for the poorer absorption of the drug. The authors could not explain the failure of citric acid to enhance serum concentrations when administered with tetracycline base in contrast to its marked effect when given as the hydrochloride. However, they hypothesized that the ability of citric acid to enhance serum levels of tetracycline is related to its ability to form complexes with calcium ions which are unavailable for complexing with the tetracycline.

"...Tetracycline hydrochloride

and citric acid, in an encapsulated mixture, produced higher serum concentrations and greater urinary excretions, and hence better absorption of tetracyclines, than any other preparation studied..."

of sodium metaphosphate were published simultaneously with the last mentioned report of Welch et al.⁷ These data were based on thoroughly controlled studies and include additional data on the absorption of tetracycline hydrochloride and tetracycline phosphate complex.

It is interesting to note that in the last mentioned paper of Welch et al.⁷ indicates that in their study the capsules of tetracycline hydrochloride, chlortetracycline hydrochloride and tetracycline phosphate complex all contained dicalcium phosphate as a filler, whereas the capsules containing citric acid and sodium hexameta-phosphate did not contain any dicalcium phosphate. This could clearly explain the discrepancies noted in that study. Likewise, the inconsistencies in other studies may very well have been due to the use of calcium as fillers in some of the preparations.

Editorial.

The New England Journal of Medicine.
258:97-99, (January 9) 1958.

ACHROMYCIN*V

TETRACYCLINE HCl BUFFERED WITH CITRIC ACID

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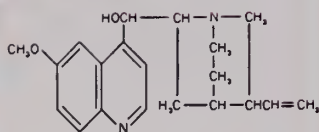
*TRADEMARK, REG. U.S. PAT. OFF. — TOLBUTAMIDE, UPJOHN



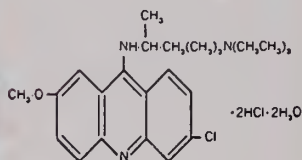
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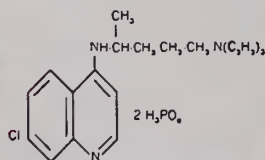
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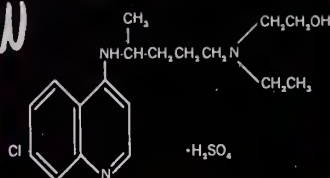
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"... the least toxic of its class..."³

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SUPPLIED: Tablets of 200 mg., bottles of 100.

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REFERENCES:

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Atabrine (brand of quinacrine), Aralen (brand of chloroquine)

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The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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(6) Canizares, O.; Shatin, H., and Rosen
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- approximate 1/1000th of the
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A TOPICAL "METI" STEROID PREPARATION FREE
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NAME **METI-DERM® CREAM 0.5%**

DESCRIPTION 5 mg. prednisolone, free alcohol, in each
gram—nonstaining, water-washable base—
exerts a therapeutic effect in presence of an
exudate without being occlusive.

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Meti—T.M.—brand of corticosteroids.

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FORMULA: 5 mg. prednisolone, free alcohol, in a water-washable base.

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WHEN SCRATCHING I
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IN TOPICAL CREAM METI-DERM Cream ex
ntiallergic action in the affected area. No systemic
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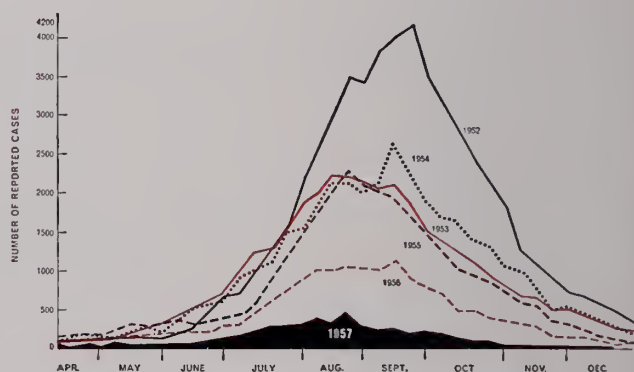
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METI-STEROID BENEFITS

A MIRACLE IN OUR TIME ?

At the last accounting,¹ physicians throughout the country had administered at least one dose of poliomyelitis vaccine to 64 million Americans—all three doses to an estimated 34 million. Undoubtedly, these inoculations have played a major part in the dramatic reduction of paralytic poliomyelitis in this country.



Incidence of polio in the United States, 1952-1957
(data compiled from U.S.P.H.S. reports)

vaccine is plentiful for the job remaining

There are still more than 45 million Americans under forty who have received no vaccine at all and many more who have taken only one or two doses.

As it was phrased in a public statement by the Department of Health, Education, and Welfare:

*"It will be a tragedy if, simply because of public apathy, vaccine which might prevent paralysis or even death lies on the shelf unused."*²

Eli Lilly and Company is prepared to assist you and your local medical society to reach those individuals who still lack full protection. For information see your Lilly representative.

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2. Department of Health, Education, and Welfare: News Release, October 10, 1957.



OMENTAL INFARCTION

EDWARD M. BOHAN, M.D.*

CASE HISTORY:

The patient, a man, age 32, was received into St. Francis Hospital on April 20, 1953. He was complaining of severe pain in the right upper quadrant of the abdomen. His family doctor suggested that he might have acute cholecystitis or a ruptured ulcer. His pain was relieved for 24 hours previous to admission. The patient stated that it seemed like a pressure pain. Slight diarrhea was present. The patient's past medical history consisted of bronchial asthma, which was present since early childhood, and an attack of amoebic dysentery while in Germany during World War II.

The patient was 6' 3" tall; his weight was 205 pounds. His blood pressure was 164/82. There was no icterus. Examination was normal except for tenderness in the right upper quadrant just below the ribs. No edema or varicose veins of the extremities were found.

The white blood count was 16,650, with 82% polys. Blood sugar, urea nitrogen, and prothrombin time were normal. Icterus index was 3 units and van den Bergh reaction was negative for the direct and indirect phases. Urinalysis was negative for albumen and sugar, and showed 8 to 10 red blood cells per high powered field. No casts or white cells were seen.

A surgical consultant made a diagnosis of mild cholecystitis, rather than appendicitis, although the possibility of an appendix in the retrocecal location as the cause of the trouble was kept in mind. However, the patient's condition became gradually worse. His temperature was elevated to 99.4° oral-

ly, and a decision was made to operate on the next day.

Two more blood counts taken showed no change.

An x-ray of the chest showed normal heart and lungs and a film of the abdomen showed normal psoas and kidney shadows on both sides. There was no evidence of any radiopaque calculi in the gall bladder region or in the urinary tract. Normal distribution of gas shadows and soft tissue shadows was observed.

SURGICAL FINDINGS:

The greater omentum in the right upper abdomen showed localized hemorrhagic necrosis about 3" x 4" in size, with a slight amount of peritoneal blood-tinged fluid covering this area. There were no plastic adhesions and there was no gross evidence of torsion of the omentum. The involved segment of the greater omentum was directly under the parietal peritoneum and right rectus muscle halfway between the costal margin and level of the umbilicus, and the abdominal wall showed no evidences of trauma and no signs of hemorrhage. The liver and gall bladder were normal, and the appendix was found in the retrocecal position in the right lower quadrant, distended with a fecalith about the size of a pea in its mid-portion. There was no other abnormality detected in the adjoining bowels and mesentery, and there was no evidence of internal hernia.

The pathological report by Dr. Joseph W. Abbiss was as follows: "Gross examination reveals two portions of what appear to be fatty tissue which are markedly engorged with blood. Histological examina-

* Chief in Medicine and Metabolism, St. Francis Hospital, Wilmington, Delaware.

tion reveals fatty omental tissues which are markedly engorged with blood and which are showing early gangrenous changes. Diagnosis: gangrenous omentum."

The appendix was also removed at the time of operation, and showed fibrosis.

The patient was readmitted to St. Francis Hospital on December 7, 1957, because of abdominal pain and vomiting. Operative procedure at this time consisted of removal of a band of adhesions in the right pelvis which was causing obstruction of the ileum. Recovery was uneventful.

Tille¹ was able to collect records of only 26 cases of this type up to 1953. In August, 1957, Henshaw and Stafford² reported the case of a child. A case was reported by O'Beirn.³ He noted in his case that the pain was aggravated by deep breathing and bending. In 1950, Manfredi⁴ reported a case of omental segmental infarction in infancy. He stated that only one case in childhood had previously been reported. Mitchener⁵ reported cases in December, 1954. James⁶ reported two cases of acute segmental infarction due to primary torsion. He stated that 145 cases of infarction due to primary torsion had been reported up until 1951.

In this particular case, there was no torsion. The patient was a young, healthy man, only slightly obese.

The differential diagnosis requires the physician and surgeon to be conscious of this rare entity in their mental classification of the causal factors of acute abdomen.

Once the abdomen has been opened, the sero-sanguinous fluid will make the surgeon suspicious of omental infarction. James also emphasizes this point in his two case reports.

SUMMARY

A case of omental infarction with gangrene of the greater omentum has been reported. No torsion was present. Less than 35 cases of this type have been reported in the literature. The appendix was not in an active pathological state at the time surgery was performed; the gangrenous portion of greater omentum was removed.

The patient returned to St. Francis Hospital four years later with intestinal obstruction due to adhesions. Surgery was performed to relieve this condition. Recovery was uneventful.

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CASE REPORTS OF THE SURGICAL DEPARTMENT OF ST. FRANCIS HOSPITAL

Edited by J. F. HUGHES, M.D.

CASE 4317

HISTORY: This patient was admitted in October, 1957 and discharged 19 days later; she was 42 years of age. Her main complaint on admission was pain in the right lower quadrant and nausea. She has quite an interesting past history; a "stroke" in August, 1950, a mitral valvectomy in 1952 at a hospital in Philadelphia, and she has had three Cesarean sections, one in 1953, another in 1954 and the last one in 1956.

She stated that "on and off" she had pain localized in the right lower quadrant for quite some time. Since two days prior to admission, she had this pain and it became progressively worse. She was nauseated on several occasions.

PHYSICAL EXAMINATION: There was no cardiac enlargement, sinus rhythm was normal, rate was regular with sinus extrasystole. A grade 3 systolic harsh murmur radiated to the other areas, especially toward the left. The lungs were clear to palpation, percussion and auscultation. Liver, spleen and kidneys were not palpable. She was very tender to palpation on the right lower quadrant, with abdominal guarding and some rebound tenderness. There was a scar on the midline below the umbilicus. There was a partial impairment of movement of the left leg but there was no edema of either extremity, nor were there any varicose veins.

Impressions were (1) Appendicitis, acute; (2) Mitral insufficiency; and (3) Hemiplegia, left.

DR. L. JONES: This woman, as Dr. Graff will tell you, had a kind of bluish-grey color and looked very, very ill. I might add that Dr. Graff told me that he had been anes-

thetist for all three of these sections, and it was "touch and go" each time, whether she'd make the grade.

I made a right rectus incision, and I broke into an appendicial abscess. I removed the appendix and aspirated the abscess and placed a little sulfanilamide powder in the abscess cavity and placed a drain. She was removed from the operating table in rather poor condition.

DR. P. OLIVERE: On the fifth post-operative day this patient had a portable film of the chest which was taken in the supine position. The film showed extensive opacity and impaired aeration at the right base with depression of the short transverse fissure. Changes at the right base gave the appearance suggesting atelectasis, although I felt that an underlying pneumonia could not be ruled out.

There was a partially opaque rubber catheter passing down into the stomach. Outside of that, the lung fields looked within normal limits.

DR. J. GRAFF: This patient was not intubated at the time of surgery. At the time of her first Cesarean section, she exhibited signs of a stroke, heart failure and was a poor risk. At that time, we used an abdominal wall block, and it was a perfectly satisfactory procedure. She had good anesthesia and she cooperated well.

At the next Cesarean, we attempted the same thing, and this was just about as unsuccessful as the first was successful. We ended up by giving her general anesthesia which she tolerated fairly well. In the third Cesarean section, we decided to just go ahead and give her general anesthesia which we did right from the start, and again we

did well. It is a question of depth of anesthesia more than anything else. I don't know that choice of anesthesia particularly presents a problem here.

DR. JONES: As her post-operative course progressed her chest symptoms subsided and she was discharged in good condition.

CASE 4375

HISTORY: This 64 year old woman was admitted in November, 1957, and discharged 23 days later. Her chief complaint was bleeding from the rectum with resultant weakness. She was admitted because of the rectal bleeding. Color of the blood was dark and the patient felt very weak. She stated that these symptoms were present since the day prior to admission. She also stated that she had had some episodes of rectal bleeding a few years ago and was admitted here and several blood transfusions were given to her.

PHYSICAL EXAMINATION: There were no especially significant findings except for the bleeding.

The operative report reads as follows: "This patient has had repeated hemorrhages, associated with shock since admission, with the passage, each time, of dark liquid blood and blood clots by rectum. Upon opening the abdomen, the colon was found to be moderately distended by gas and liquid dark blood, semi-solid blood and blood clots, especially in the region of the descending colon and the upper portion of the sigmoid colon. The distal part of the colon appeared to be essentially empty, without evidence of much blood in this area. The colon on the right side of the abdomen did not appear to contain blood. It is, therefore, presumed that the bleeding site was probably in the region of the splenic flexure.

Careful external exploration of the colon failed to reveal any gross evidence of a lesion which would account for the bleeding. Similarly, internal exploration of the colon, using the sigmoidoscope, did not reveal any evidence of active bleeding, ulcer or other lesion to account for the repeated hemorrhages. No active bleeding or bright red blood was seen at the time of explora-

tion. The small intestine appeared to be mildly gas-distended, but not obstructed and showed no evidence of containing blood. The stomach and duodenum were empty. No evidence of bleeding from the upper intestinal tract was found. No evidence of peptic ulcer was found on examination, of the stomach and duodenum. The lesion from which the hemorrhages occurred into the colon is still not known. No evidence of ulceration or diverticulitis was found within the lumen of the bowel on internal examination of the colon. No evidence of malignant disease was seen. The patient's pulse and blood pressure remained within normal range throughout the operation."

DR. P. OLIVERE: The original film taken shortly after admission, showed some generalized distension of loops of colon, as well as some small intestinal loops. This generalized distension gave more the appearance of an ileus, rather than of an obstructive lesion. She was quite distended at this time. She had a metal tube drain (this was probably after her original surgery) in the pelvic portion of the abdomen.

On the 12th post-operative day portable films taken of the chest in a sitting position in bed showed that there was impaired aeration and clouding over both bases. These changes appeared more marked at the right base, with some relative elevation of the right diaphragm. We felt that this represented a hypostatic pneumonia, involving the bases.

Six days later there was almost clearing of the lung changes and better aeration of both lungs at this time, although there was some clouding obscuring the left costophrenic angle, suggesting a mild amount of effusion in the left base. We felt that there was clearing of the pneumonic changes at the bases with some residual effusion at the left base.

DR. C. SMITH: This patient presents a rather common problem, it seems, of bleeding from the intestinal tract without apparent cause. She had had previous hemorrhages and had studies of her upper and lower intestinal tract when she was not bleeding and no lesion was found.

As you all know, the principal causes of gastro-intestinal hemorrhage are rather easy to identify. When you do not find one of them, however, you are left with some rather bizarre possibilities. Just to mention one of them, which Dr. C. W. Mayo has called attention to, jejunal diverticulum, a lesion that bleeds quite commonly but one which might well not be found in the upper or lower gastro-intestinal tract x-rays. Small bowel x-rays, I feel, should be done on this patient even though they are a lot of work and not too reliable.

A patient like this one always brings you back to what Dr. Harvey Stone published some years ago. This paper is not out of date and was quoted from the Lahey Clinic as recently as two years ago. Dr. Stone had the courage to publish a series of patients who had gastro-intestinal hemorrhages on whom he was unable to find a cause for bleeding at the time of operation. He felt that it may not be worthwhile operating on such patients unless the magnitude of the bleeding demands it, and such appears to have been the circumstances here.

I don't say the foregoing in criticism of anything that has been done on this patient. I merely wish to point out the problem that we are discussing has been present for many years. I believe, however, that some change in policy has been made. Dr. L. K. Ferguson, a few years ago, published a few cases in which he was able to identify and treat the site of bleeding during the hemorrhage. He recommended that this procedure be carried out in selected cases. We all know that it is very difficult to find a bleeding point when the intestinal tract is filled with blood.

DR. D. PRESTON: When the patient left the hospital, I asked her if she would let me re-examine her in about four weeks. Realizing that she was still weak and had had much hospital treatment, I didn't wish to add to her inconvenience by extensive examination at the time. It is my thought that we may find an organic lesion to account for the hemorrhage which she had, but at present, I don't know the cause. It's very disturbing to have a patient in a dan-

gerous shock condition from hemorrhage and not be able to control the source of the bleeding. It is possible that she may have a superficial lesion in the mucosa that is not easily seen by direct inspection, perhaps a superficial erosion of a vein in the mucosal layer of the colon. I am hopeful, of course, that she will not have another hemorrhage, but we have no reason to feel secure in that thought because it is possible that the problem may be repeated for us.

DR. C. SMITH: In order that I may appear not to know too much about this problem, I wish to state that I have at present, under my care, a patient who has had four hemorrhages from his intestinal tract. This patient has had two upper gastro-intestinal tract x-rays, two barium enemas and a small bowel x-ray. I still don't have a diagnosis, and I am not going to do anything to him unless I am forced to it, which I may well be. Once again, I wish to point out that it is not uncommon to be unable to identify, prior to operation, the cause of a gastro-intestinal hemorrhage.

DR. ARMINIO: This problem also occurs in the younger age group. I have one now that I've explored twice, who, on both occasions, unfortunately was rather drastic, and we thought we couldn't control the bleeding. This child went on and expired, and at autopsy no reason for the bleeding was found either. So, this problem may continue and unfortunately, may go on to the very end, and you still have no diagnosis.

CASE 4019

SUMMARY: This patient had a subtotal gastrectomy for ulcer symptoms and seven days after the operation the patient had a massive hemorrhage.

DR. D. PRESTON: This patient is a 59 year old stocky, white man. He has had repeated upper gastro-intestinal hemorrhages during recent years. He is known to have had a chronic peptic ulcer for which he'd been treated constantly, except for the times when he would go off his diet and drink more whisky than he should.

The immediate problem at the time of the current admission was control of the hemorrhage, which was done by conservative treatment. After the blood volume had been restored by transfusion, the question then arose as to whether he should have a resection of the stomach because of the strong possibility of future hemorrhage, realizing that the risk each time was becoming greater. He had had five previous hemorrhages. There had been multiple admissions for transfusions to correct low red blood values following the vomiting of blood.

After removing about 75% of the stomach, we opened the specimen and found a small ulcer in the central portion of it on the posterior wall, which was assumed to be the cause of his hemorrhages. The pathologist examined this tissue and reported adenocarcinoma. It would seem that the resection was adequate, presuming this to be an early malignant change in a previous benign peptic ulcer of the stomach.

In addition to the ulcer problem, and carcinoma problem, there was also chronic hypertrophic gastritis, as evidenced by large rugose folds of mucosa, which upon examination by the pathologist, showed the typical round cell infiltration characteristic of this disease. The site of his hemorrhage one week after resection was not certain, although we presume that it was from the residual upper gastric segment, being about 25% at the gastric cardia. The cause of the bleeding is thought to be residual chronic hypertrophic gastritis which persists in this retained segment. It is possible that he could have bled from the suture line, although this would seem unlikely to occur seven days after operation. No duodenal ulcer was present at the time of resection, so it was not a problem here of leaving ulcer disease in the duodenum, which might be considered a possible source for bleeding. His liver appeared normal and no evidence of portal hypertension was seen at the time of operation.

Of course, we cannot exclude the possibility that he may have bled from other portions of the intestinal tract below the duodenal level. I'd be grateful for sugges-

tions as to further treatment, either medical or surgical. Should other investigative measures be undertaken to determine whether he has another organic lesion, perhaps, to cause this post-operative hemorrhage? He has been doing well and has had no further complication since his discharge from the hospital.

DR. P. OLIVERE: This man has had several studies of the stomach and they showed marked thickening of the rugal folds, especially in the antrum, but no evidence of any constant defect. Peristalsis could be seen to pass through all the way through, fluoroscopically, and we have films here to show it. The cap and duodenal loop looked all right. There were numerous diverticuli in the colon.

There is the appearance of the thickening of the rugal folds in the region of the antrum. There are no changes in the loop.

We got a good study which shows the esophagus well-outlined, and without much trouble, I think we could call this esophagus normal, with no evidence of any diverticuli or any varices.

This film shows the same thickening throughout the stomach, especially in the antrum, but peristaltic waves can be seen going through. The ulcer was never shown on the film. The only thing we did see was the marked thickening of the rugal folds, but peristalsis did go through, and the esophagus looked normal.

This study was taken after the operation, showing about 20 to 25% of the stomach contained in the cardiac end, with no changes suggesting recurrent jejunitis or evidence of the "dumping syndrome", and there was no evidence of any obstructive signs.

CASE 4028

HISTORY: This is another patient that had a subtotal gastrectomy for a simple peptic ulcer. He was 47 years of age and developed pneumonia and empyema associated with post operative abdominal abscess. (Figure 1.)

DR. D. PRESTON: His chief complication was not the duodenal fistula. That was



FIGURE 1

Changes in left lower pleural space suggest collection of fluid.

easily controlled by getting a tube in for drainage, but he nearly died of post-operative pneumonia and empyema. He apparently had accumulated a considerable quantity of gastric fluid during 12 hours of fasting before operation. He inhaled vomitus during induction of his anesthesia and that gave the anesthetist a rather rough time for a while. With a tube in the trachea he suctioned out as much of the acid-gastric fluid as he could, and the operation continued without event. After the operation the patient developed a high fever, rapid pulse rate and dyspnea with clinical evidence of a pneumonitis. He was given oxygen, symptomatic treatment, antibiotics and after a period of time, his temperature subsided to normal.

He went home, developed a high fever after several days, and came back. We put a tube in his left thorax and drained off four hundred cc. of pus. His temperature stayed down and he left the hospital. I saw him again later. He was having pain in his left chest. X-ray film showed

a shadow at the base of the lung on the left side, which the radiologist did not think was an abscess but believed it to be a zone of pneumonitis. He has now been admitted to another hospital because of bed shortage at St. Francis Hospital. His temperature remains normal, but it is thought that he may have some residual inflammatory changes in the base of his left lung. The abdominal incision has long since healed, and he is on a general diet, but I think Dr. Graff might wish to warn us about preparing our patients better for operation. In this particular instance, there was stenosis of the outlet of the stomach which may have accounted for an over-accumulation of fluid in the stomach, and I believe that this is a serious matter, because it could have resulted in this man's death. Inhaling of vomitus may have been preventable. If a tube had been put down and gastric juices removed by suction before sending him to the operating room, we might not have had the risk of this serious complication.

CASE 3930

HISTORY: This case is a man, 61 years of age, whom Dr. John Hynes had previously treated for carcinoma of the larynx. He was admitted in October 1957, developed a fistula and Dr. Hynes repaired it with a piece of homogenous aorta.

DR. J. HYNES: This man had a laryngectomy for cancer of the intrinsic larynx in August. His course was complicated by a short period of a pharyngeal fistula which healed before his discharge from the hospital. He went home, and was swallowing fairly well, but gradually developed progressive difficulty in swallowing. He was readmitted and studied. It proved impossible to pass a Levin tube at that time. X-ray examination showed a marked stricture of the cervical esophagus above which there was also a small diverticulum, apparently coming off the bottom of the pharynx. He was explored soon after admission. The stricture was located amid a lot of scar tissue and apparently was due to the previous pharyngeal fistula which had closed off at the skin level, but had left a chronic in-

flammatory mass with granulation, up against the wall of the esophagus where a marked stricture was present about the mid-cervical esophagus. The esophagus was freed as well as possible above and below this point. The stricture was incised longitudinally and sutured transversely. The tissues still showed some chronic inflammatory reaction and were rather poor stuff to anastomose. Within a few days, the closure broke down and he had a large esophageal fistula in his anterior mid-neck and unfortunately, because he had a mid-line incision, was spilling over into his permanent tracheostomy. The situation was serious in that he was aspirating his own secretions. Of course, he was being fed through a tube so that he wasn't getting food down his trachea, but he was getting

a terrific amount of mucus and saliva from his throat that would work into the trachea through the groove above his permanent tracheostomy tube, and he had severe coughing and expectoration. (Figure 2.)

Our next attempt was to repair the defect in the esophagus by using a piece of preserved aorta, reconstituted in saline, and suturing it into the defect. That was carried out approximately ten days after the first operation. Dr. Walter Moore kindly provided the graft which was sutured above and below to the open ends of the esophagus. The strip of tissue along the posterior wall which had been the site of the stricture was not removed but the esophageal graft was split longitudinally and sutured on each side of that.

At the end of the operation, the closure seemed to be adequate. There were two layers of very fine sutures placed, but within two or three days it was apparent that he had a second fistula. I think that in dissecting the upper end of the esophagus which was buried in very dense scar tissue near the base of his tongue, we probably opened into the diverticulum I mentioned and he had a salivary leak which bathed everything in mucus and saliva. He finally lost the upper end of his aortic graft. Whether the lower end is still there or not, I cannot tell, because meanwhile the skin had healed over and it is out of sight. Whether it has gradually disintegrated or not, I'm not sure, but he now has reached the point where he has a very small mid-line fistula high in the neck which leaks only a little. He is still on tube feedings, he has been home from the hospital a month or so, and I think the major problem is whether he has a sufficient lumen to prevent a recurrence of the stenosis. I can't give the answer to that.

He has gained weight on his tube feedings; he is comfortable, and he may yet have recurrences of the stenosis.



FIGURE 2

This barium swallow shows a diverticulum of the anterior lower portion of the pharynx. Just above the tracheostomy the stricture of the esophagus is noted.

ASIATIC INFLUENZA COMPLICATED BY MYOCARDIAL INFARCTION REPORT OF A FATAL CASE

GEORGE J. BOINES, M.D.,* EDWARD M. BOHAN, M.D.,** JASON L. CAMPBELL, M.D.***

A white man, aged 54 years was admitted to St. Francis Hospital on September 25, 1957, with the history of having been ill at home for three days. His illness began with chills, fever, headache, dyspnea, abdominal cramps, a productive cough with expectoration of yellowish sputum, and general weakness. He treated himself for a cold until September 25, when his temperature rose to 103°, and he developed marked dyspnea and discomfort in his chest. He also noted that his right testicle was enlarged and tender, and he thought that this was related to his right renal calculus which had been diagnosed in 1952. His cough had been present for at least three or four weeks, but it was not serious enough to put him to bed.

On September 15, he had received 1 c.c. of monovalent Asian flu vaccine at his place of business.

His past medical history was negative

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except for a small renal calculus in his right ureter which produced renal colic in 1952. He was treated conservatively, but the stone was not expelled. In 1950, he had a small calculus in his left ureter which he eventually expelled. He was allergic to aspirin. He was always overweight, averaging 225 to 240 pounds. His height was 68½ inches. He was immunized for typhoid-paratyphoid and small pox before sailing for Egypt and Greece earlier in 1957.

On admission, his systemic review was negative except for anorexia since the onset of the present illness. Blood pressure was 150 60, pulse 100, regular and strong. Temperature (rectally) was 103.4°F., dropped to normal on 9/28, and rose to 104.6° on 9/30, and gradually dropped to 100°F. Weight at this time was 225 pounds. Heart was normal without murmurs. There were moist rales, described as subcrepitant, at the right base, with generalized slightly diminished breath sounds. Liver and spleen were not palpated. There was no cyanosis. There was no ankle edema, nor was there any jaundice. The right testicle was swollen and tender.

Asiatic Influenza: Report of a Fatal Case LABORATORY STUDIES Insert I

BLOOD												
9/25 Mazzini negative												
	RBC	WBC	Hemoglobin %	Gm.	Seg.	Lymph.	Hematocrit	Pro-thrombin	Sugar (2 h. P.C.)	B.U.N.	CO ₂	Blood Culture
9/25	4,660,000	13,650	94	14.5	91	9	43.5		133	9.8		
10/1										24.9	48 vol. %	Sterile
10/2	3,510,000	26,300	91	14	96	4						
10/4		18,500	85	14								
10/10	4,590,000	15,900	91	14	85	15			142			
10/13								81%				
10/18	4,880,000	18,400	98	15	91	9				42.5		

Asiatic Influenza: Report of a Fatal Case
SPINAL FLUID

Insert II

Wassermann	WBC	Polys.	Lymphs.	Total Protein	Globulin	Chlorides	Sugar	Smear	Culture	Color	Pressure
10/7 Negative	5	3	2	79	0	775	92	0	0	clear	normal

11/16/57
AGGLUTINATION TESTS FOR VIRUSES

Reported by Dr. Klaus Hummeler, Virus Diagnostic Laboratory, Reference Laboratory for the Department of Health, Commonwealth of Pennsylvania, 1740 Bainbridge St., Philadelphia, Pa.

Lymphocytic Choriomeningitis	Mumps	Polio I	Polio II	Polio III	Influenza B	Q Fever	Psittacosis	Soluble Influenza A	Asian Influenza	L3 Strain	Adeno
0	0	0	0	0	0	0	0	1:32+	1:32+	1:32+	0

URINE

	Reaction	Sp.Gr.	Albumen	Sugar	WBC	Culture
9/25	acid	1.016	trace	0	many	
10/1	acid	1.010	0	0	15-20	
10/2	sl.alkaline	1.015	1+	0		Proteus vulgaris

THROAT CULTURE

10/3	1. Staphylococcus aureus	2. Streptococcus anhemolyticus	3. Diplococci
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COMPLETE BLOOD VOLUME DETERMINATION 10/2

1. Total Plasma Volume	- Deficit	0
2. " Blood "	"	0
3. " Plasma protein	"	0
4. " Circulating hemoglobin	"	31
5. Red cell volume	"	214 c.c.

Asiatic Influenza: Report of a Fatal Case
ELECTROCARDIOGRAPHIC TRACINGS

Insert III

	Rhythm	Rate	PR	Q	ST	Axis	Opinion
9/28	Sinus	74	.18	0	Normal	Normal	Within normal limits. QT interval is short. No evidence of hypokalemia.
10/12	Sinus	100	.24	0	Depressed		Distinctly abnormal septal damage
10/14	Sinus	110	.22	0	Depressed		Abnormal as on 10/12.

X-RAY STUDIES

9/25	Viral pneumonitis, right lower lobe
9/30	Parenchymal changes over right lower lobe
10/17	Hilar shadows are increased. No lung parenchymal changes. Heart within normal limits.

PROGRESS NOTES

- 9/25 No ankle edema. Temperature 103.6°F., pulse 128, respirations 40. Coughs Penicilin started.
- 9/26 Feels slightly better. Still weak and coughing. No jaundice.

- 9/28 Lungs are congested; moist rales throughout chest. There is impaired resonance over right base. Abdomen distended. He is confused and toxic. Some cardiac decompensation.

- 9/29 Right epididymitis is painful; however, patient feels better. Pneumonitis localized at right base. Poor appetite. Digitalis started.
- 9/30 General condition appeared improved in the morning. In the afternoon, he become somnolent and lethargic. No neck rigidity. No Babinski. BP 160/60. Pulse 100. Eyegrounds negative. Very restless. Complains of back pain. In the evening, the pneumonic process extended. Patient became extremely lethargic and was placed in oxygen. Temperature 104.6°F. after severe chill at evening.
- 10/1 Face dusky, pulse 72 regular; tongue dry, some neck rigidity, but no headache. Good urinary output, but blood urea is elevated to 24.9 mg. Right testicle is markedly swollen and tender. Gamma globulin (10 cc.) was given empirically for possible mumps orchitis. Temperature dropped to 101°F., pulse 80, respirations 24. Profuse perspiration present. Abdomen is distended.
- 10/2 Process in the right testicle has extended. May be responsible for the fever and abdominal distention due to deep lymphatic drainage. Perspiring.
- 10/3 General condition improved. Lungs clearing. Urinary output has been good.
- 10/4 Right orchitis is subsiding. Patient appears confused.
- 10/5 Appetite improved. Cheerful. Talking clearly.
- 10/7 Some neck rigidity; drowsiness appears of the encephalitic type. Spinal tap reveals normal spinal fluid except elevated total protein 79 mg. Still in oxygen tent.
- 10/9 Generally improved. Out of bed in wheelchair for short intervals.
- 10/10 Restless and drowsy. Good appetite.
- 10/12 EKG shows changes indicative of possible myocardial infarction. BP 170/60, pulse 80, irregular but strong. Temperature 99.2°F. Lungs

clear; no cardiac murmurs. Patient appears very pale and complains of extreme weakness and drowsiness. Still in oxygen.

- 10/14 BP 160/90, P.108, R.24. Coughs and expectorates small amounts of clear mucus. Still drowsy.
- 10/16 Pulse is slightly irregular, but strong. Patient is very tired.
- 10/17 Lethargic. Responds to questions. No cardiac murmurs; bradycardia plus extrasystoles. Lungs are clear. No nuchal rigidity. Abdomen is soft. Femoral pulses present. Patient is very restless.
- 10/18 Pulse very strong and regular; not confused. Out of bed. Nauseated and vomited. BP 180/98, pulse 94, respirations 24. General condition seems improved. At 11 P.M. BP 170/60, restless, poor color. Gasping for breath; expired 11:15 P.M.

Cause of death: 1. Myocardial infarction due to coronary thrombosis
2. Viral pneumonitis — Asian influenza
3. Acute epididymitis
4. Right renal lithiasis with uremia and hypertension

Therapy: 1. Antibiotics
2. Parenzyme I.M. for orchitis
3. Digitalis
4. Fluid therapy, vitamins, Prostigmine
5. Oxygen
6. Gamma globulin
7. Tranquilizers

DISCUSSION

CLINICAL CHARACTERISTICS OF VIRUSES

Viruses are obligate intracellular parasites. The symptoms in viral infections are dependent on capillary damage which leads to increased permeability with protein leakage into the tissue and their sequelae.

Viruses are meningo-tropic, dermatropic, neurotropic, pneumotropic, viscerotropic and cardiotropic. Some have a preference for several tissues simultaneously or may be pantropic. Some agglutinate erythro-

cytes. The clumping of red cells by viruses is specifically inhibited by homologous immune sera. This leads to the practical use of agglutination inhibition tests. Viremia may occur.

Myocardial involvement may be brought about by the action of one or more viral agents, sometimes one activating the other. Antigen-antibody reaction may also occur in the heart, or secondary infection may be responsible for its damage.

Various studies show that the primary pathology of influenza virus infections is destruction of respiratory tract epithelium. Type A influenza virus was isolated by Smith, Andrews and Laidlaw in 1933. They infected ferrets with filtrates of secretions obtained from the nasopharynx of patients in the early stage of influenza. The English strains and the Puerto Rican strains now are known as influenza virus A.

A group of new strains appeared in 1946 and 1947 which were related to Group A, but did not cross protection with the A strain in man or animals. These strains are now called A prime.

Some cases have no respiratory infections. The onset is abrupt or sometimes preceded by mild malaise. Anorexia, fever, headache and injection or burning of the eyeballs are common. Mild sore throat and general aching may be common. The temperature varies from 101° to 104°. Exhaustion occurs. Usually neutropenia is present.

THE ASIAN INFLUENZA STRAIN

This is also known as influenza A — Asian strain (FE).

It was first identified by Dr. Maurice R. Hilleman from the Hong Kong epidemic in May 1957. The spread of this upper respiratory infection throughout the United States is now past, but it has left an impressive history in the annals of medicine. The average duration of symptoms is three to five days. October and November,¹ 1957, marked the highest peak in the incidence of pneumonia and influenza all over the United States. The Asian influenza virus

was isolated from numerous patients during this period.

In a study of twenty-three deaths, Herrmann et al² reported the following symptoms predominating in the acute stage of this disease: headache, cough, sneezing, anorexia, chills, fever, chest pain, hemoptysis, "cold", rhinorrhea, malaise, crepitant and musical rales, dyspnea, sore throat, lethargy and weakness, aches in bones and joints. The usual organisms cultured from the respiratory tract secretions were Friedlander's bacilli, alpha streptococci, pure culture of *H. influenza*, and pneumococci and/or micrococci (staphylococci) from 17 of the cases (Results of the coagulase test were positive.)

The pathology noted in posted material included severe laryngitis with heavy exudate, bronchiolitis, pneumonia with edema, atelectasis and acute focal emphysema, encephalomalacia, minimal meningitis, and cerebral edema. The findings in the lungs which are consistent with the pneumonia classically attributable to influenza are as follows: "Grossly the lungs were externally patchy, dark blue gray, and firm. On section, the parenchyma was excessively moist; a gray brown watery fluid ran out freely, and the parenchyma was dark red and firm. Microscopically, there was extensive filling of the alveoli with pink fibrin, and, in areas, there was a hyaline membrane formation lining some of the alveolar walls."

X-ray findings were usually negative even if there were clinical lung findings.

In a study of 50 fatal cases by Davenport³, it was noted that approximately one-half showed evidence of staphylococcal pneumonia. The others were either overwhelming infections by organisms readily responding to early conventional therapy, or to less intense infections in persons with chronic disease. A small number of cases were associated with infections in the last trimester of pregnancy. Some of the pneumonias were recorded as hemorrhagic. The pneumonia cases responded well to antibiotics.

Our case outlined above had all of the symptomatology typical of influenza. How-

ever, he also had the epididymitis and orchitis, mild meningeal symptoms, and drowsiness, restlessness, weakness which accompany encephalitis. These complications are also seen with Q fever and mumps meningoencephalitis. The virus complement fixation tests were negative for these however, but the tests were positive for Asian influenza. The pneumonitis cleared up clinically and by X-ray evidence. Our patient was apparently improving when he suddenly expired: a cardiac failure death.

The therapy consisted of antibiotics, digitalization and supportive measures. Gamma globulin (10 c.c.) was given intramuscularly when it appeared that he might have had a mumps meningoencephalitis. His general condition improved temporarily after the gamma globulin.

IMMUNIZATION BY INFLUENZA VACCINE

The effectiveness of the Asian influenza vaccine in producing immunity against this disease was demonstrated by Bell et al,⁴ who induced Asian influenza artificially in vaccinated and unvaccinated volunteers. The vaccinated group did not develop fever as the controls, and the symptoms were more serious in the placebo group after challenge with the virus. Of the unvaccinated group 78% developed influenza as compared with 44% of the vaccinated group after they were infected with the virus.

Antibody increase is not expected until ten days after vaccination. The antibodies appeared 17 to 19 days after the challenge with the virus. The fever and other symptoms appeared 33 to 44 hours after the challenge. In several studies with controls, the vaccine was found to be 42% to 61% effective with the 200 CCA vaccine and 67% effective when the 400 CCA unit vaccine was used. The more concentrated the vaccine, the greater the percentage of effectiveness. The vaccine effectiveness lasts about six months.

DOSAGE OF VACCINE

There are two influenza vaccines available at the present time. The monovalent

Asian influenza vaccine is made in 200 and 400 chicken cell agglutinating units per c.c. and the polyvalent influenza vaccine contains influenza A, several strains, B, one or more strains, and the Asian influenza strain.

The following dosages of Asian influenza vaccine are recommended:⁵

1. New patients 1.0 c.c. of the 400 CCA.
2. Those who had received 0.1 c.c. intracutaneously or 1.0 c.c. subcutaneously of the 200 CCA unit vaccine and for those individuals of high risk (pregnant women and persons with chronic cardiac and respiratory conditions), a second 1.0 c.c. subcutaneous injection of 200 CCA vaccine.
3. If the 400 CCA unit strength vaccine is available, 0.5 c.c. should be given and repeated two weeks later.
4. Children under 5 years of age should be given 0.1 c.c. intracutaneously or subcutaneously and repeated after one to two weeks.
Children from 5 to 12 years of age, 0.5 c.c. subcutaneously, repeated after an interval of one to two weeks.
Children over 13 should receive the adult dosage.
5. A new polyvalent influenza vaccine is now in production containing:

Influenza A Asian strain	200 CCA
" A ¹	100 CCA
" A	100 CCA
" B	100 CCA

This vaccine is more effective. It is given 1.0 c.c. subcutaneously and repeated in two weeks. The vaccine should not be given to individuals who have a history of allergy to eggs. The reactions encountered otherwise are minimal and occur during the first 24 hours after administration.

VIRAL DIAGNOSIS OF ASIAN INFLUENZA

The etiologic diagnosis of influenza depends on virus isolations or antigenic findings⁶ since many other infectious agents produce clinical syndromes similar to influenza. The laboratory methods in identifying viruses at the present time are:

1. Electron microscope
2. Tissue culture in cells from monkey kidney, HeLa, or human embryonated
3. Hemagglutination-inhibition by antibodies
4. Antibody neutralization of tissue cultures
5. Complement fixation
6. Cultivation of viruses in fertile eggs

An early (24-48 hour) specific diagnosis of influenza or any other viral infection is imperative in our everyday medical practice, in the home and in the hospital. It is important for us to know early in the course of the disease whether we are dealing with a virus or a bacterial infection. Even though a specific antibiotic agent may not be available today, it may become available tomorrow. On the other hand, it is of the utmost importance to the patient to treat his bacterial infection energetically with the indicated antibiotics, whereas, the viral infection requires more conservative therapy.

Improved techniques in growing viruses^{7,8} in tissue cultures have made possible the early isolation of previously unknown viruses from human upper respiratory passages and the intestinal tract. The performance of various serological tests for antibodies in paired sera from cases have simplified procedures for further placing these viruses into their specific type. Thus, poliomyelitis, Coxsackie, herpes simplex, influenza, mumps, measles, varicella, adeno-

virus or ECHO viruses are identified. Many of these viruses produce typical cytopathogenic changes in the tissue cultures within 15 to 24 hours, and a virologist is able to identify the viral infections group by simply placing the test tube containing the cultured tissue cells under the microscope for examination. With such simple methods of identifying viruses, we can easily determine, for example, whether aseptic meningitis is caused by Coxsackie, ECHO, or non-paralytic poliomyelitis viruses.

In a previous communication,¹⁰ we pointed out that as physicians of Delaware, we have thus far been deprived of early virological diagnoses in our patients. Now is the time to emphasize to all concerned that viruses are here to stay and that the most advanced diagnostic laboratory facilities in this field should be made available to our patients.

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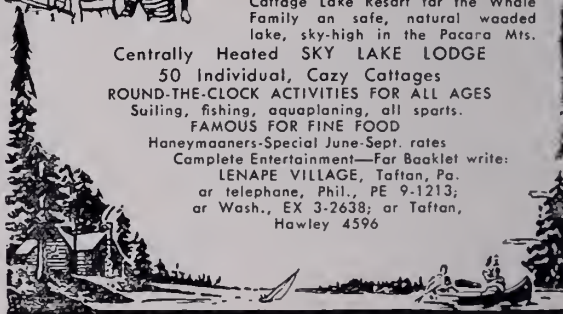
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CHRONIC MYELOID LEUKEMIA: DIAGNOSIS AND TREATMENT

JAMES M. HOFFORD, M.D.*

The following case presents an interesting problem in the differential diagnosis between chronic myeloid leukemia, myelophthistic anemia, and leukemoid reaction. While the diagnosis is simple upon reviewing the data, it actually was not made until the final bone marrow biopsy was obtained.

CASE REPORT

The patient was a 72 year old white woman who complained of soreness in the low back with radiation into each buttock; this had been present for one year prior to admission. One week before admission the tenderness on the left side had increased and was aggravated by walking. She also complained of weakness, dyspnea, edema of the legs, and heaviness of the abdomen.

The patient had been admitted to this hospital in 1949, at which time a vaginal hysterectomy and posterior colporrhaphy were done. She was readmitted in 1954 because of coronary thrombosis and hypertensive cardiovascular disease. Review of the old records did not reveal any evidence of an enlarged abdominal organ during those years.

There were no significant family illnesses. She came to the hospital from a home for the aged, where she had been living a comfortable existence, maintaining an optimistic and happy outlook.

Physical examination: The pulse was approximately 120 and irregular due to auricular fibrillation. There were a few small discreet nodes in the left supraclavicular region. The breath sounds were distant and there were coarse and fine rales over both lung fields posteriorly, especially

at the bases. The heart sounds were distant and the apex beat was almost to the anterior axillary line. There was a grade 1 systolic murmur. The liver edge was sharp, smooth and non-tender and was located halfway between the costal margin and the iliac crest. The spleen was enlarged to the midline below the umbilicus; it was firm, smooth and non-tender. Pelvic and rectal examinations were negative; the uterus was absent. There was 3+ pitting edema of the ankles and sacrum.

Laboratory studies:

Admission blood count—(11-20-57)

Hb.—58%

Red blood cells—3,010,000

White blood cells—67,300

Neutrophils 54%

Bands 28%

Eosinophils 2%

Lymphocytes 5%

Myelocytes 4%

Metamyelocytes 7%

Normoblasts 2%

12-4-57 Reticulocytes—1.2%

Platelets 238.26 in 1000

12-9-57 Hb.—64%

Hematocrit—38

Reticulocytes—3.2%

White blood cells—61,400

Mazzini test—negative. Fasting (2 hour p.c.) blood glucose—115 mg.%. Blood urea nitrogen—12.5 mg.%. Urinalysis—negative except for trace of albumin. Direct Coomb's Test—negative. Indirect van de Bergh—0.8 mg.%. Total protein—5.2 Gm.%. Albumin—3.9 Gm.%. Globulin—1.3 Gm.%. Alkaline phosphatase—6.6 Bodansky units. Prothrombin time—81.9%.

Electrocardiogram—auricular fibrillation with premature ventricular complexes.

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X-ray studies:

Chest—cardiac enlargement, left ventricular; arterio-sclerosis of aorta; pulmonary congestion.

Upper gastrointestinal series—normal except two duodenal diverticuli.

Barium enema — diverticulosis; downward displacement of splenic flexure of colon by mass in left upper abdominal quadrant.

Intravenous urogram—poor renal function.

Sternal bone marrow aspiration (11-30-57)—scanty specimen; reduced cellularity, chiefly myeloid elements; few nucleated red cells; many platelets.

Bone marrow biopsy (12-19-57) — marked hyperplasia; no fat spaces; most cells of myeloid series; goodly number of red cell elements and megakaryocytes. Impression: Chronic myeloid leukemia.

DISCUSSION

The initial bone marrow aspiration showed a relative hypoplasia of the granulocytic series. The diagnosis of a myelophthitic anemia had apparently been made. As can be seen, this points out the limitations of a single bone marrow aspiration. A myelophthitic anemia is one in which the bone marrow is hypoplastic, fibrotic, or sclerotic. There is a striking splenomegaly. There are immature white and red blood cells in the peripheral smear, and there is myeloid metaplasia of the spleen and liver.

A myelophthitic anemia may be caused by metastatic carcinoma in the bone marrow, multiple myeloma, myelofibrosis, "marble-bone" disease or osteopetrosis, Hodgkin's disease, Gaucher's disease, Niemann-Pick's disease, Schuller-Christian's disease, osteitis deformans, osteitis fibrosa cystica, osteomalacia, osteogenesis imperfecta cystica, poisoning by fluorine, phosphorus, estrogens, charcoal, anterior pituitary extract, parathyroid extract, and irradiated ergosterol.¹

With the presumptive diagnosis of a myelophthitic anemia in mind, treatment

was discussed. Radioactive phosphorus, P32, which is incorporated into the nucleoprotein of cells, inhibits the growth of cells which are multiplying at the fastest rate. In cases of leukemia, this therapeutic agent is found concentrated in the liver, spleen, kidneys, and bone marrow.¹ It seemed logical to assume that the agent would interfere with the extramedullary hematopoiesis in the liver and spleen, and thus thwart the body's attempt to maintain a normal red blood cell count.

Radioactive phosphorus is in reality a form of radiation treatment. Hickling² reported nine patients with myelosclerosis, seven of whom had x-ray treatment. Of these seven, two patients received no benefit. These two patients had not initially had an increase of the white blood count. The remaining five patients benefited from x-ray treatment. All five had an increase in the circulating white blood cell count from 20,000 to 70,000 before x-ray. The spleen usually decreased in size following these treatments.

Hickling also reported that he had found in the literature 14 cases who had had splenectomy. Four of these patients died within three months, and four died between ten months and six and one half years. Of the six who survived splenectomy, two lived a short time, and four lived one to five years. There was no striking improvement in any of the patients who had received splenectomy, except one who was reported alive several months after the operation and who did not require the frequent transfusions he had prior to operation.

Videbaek³ mentions that patients with marked leukocytosis and numerous immature leukocytes in the blood are believed to respond to x-irradiation of the spleen despite the osteomyelofibrosis. He mentions the common features of cases where splenectomy has had favorable effects. These features are slight leukocytosis, small numbers of immature myeloid cells in the peripheral blood, pronounced thrombocytopenia, and chronic splenic hemolysis. He mentions that Loeb, in 1953, splenectomized two patients successfully. In Loeb's opinion, a favorable response to cortisone

treatment indicates the need for splenectomy. Loeb states that thrombocytopenia and hemolysis in myelofibrosis are operative indications.

Videbaek reported three patients. The first had a thrombocytopenia and myelofibrosis. This patient improved decisively with splenectomy and had been maintained two years after operation. The second patient had a reticulosis of the bone marrow and anemia. This patient did well, but developed chronic lymphogenous leukemia. Patient number three was initially thought to have chronic myelogenous leukemia, but later a diagnosis of myelosclerosis was made. The patient was treated initially with Myleran and maintained for two years. The spleen decreased to normal size.

The bone marrow biopsy which was finally obtained suggested the diagnosis of chronic myelogenous leukemia in the present case.

A leukemoid blood picture was ruled out on the basis of exclusion, as can be seen from the accompanying data. The differentiation between leukemoid reactions and true leukemia is often extremely difficult.

Leukemoid reactions have been observed in association with infections: bacterial, spirochetal, viral, and protozoal. In pneumonia with empyema, in pneumococcal endocarditis, meningococcal meningitis, and diphtheria, white blood counts of approximately 70,000 have been recorded. Bubonic plague and septicemia have produced white counts of 100,000. Marked leukocytosis and lymphocytosis have been described in whooping cough (176,000), chicken-pox (81,000), congenital syphilis (105,000), infectious mononucleosis (63,000), and infectious lymphocytosis (147,000).

Tuberculosis has frequently been described as producing a leukemoid blood picture, with white blood counts as high as 156,000.

Intoxication produced by eclampsia, severe burns, mustard gas poisoning, and the use of 33% mercury ointment, have produced leukemoid reactions with blood counts ranging between 69,000 and 100,000.

Malignancy has produced leukemoid blood pictures without bone metastasis. Carcinoma of the colon may show metastasis to the spleen. Carcinoma of the stomach with lymphoid reaction, carcinoma of the lung, adrenal and renal carcinoma with widespread metastasis may show necrosis.

Severe hemorrhage and sudden hemolysis of blood may produce a leukocytosis of 106,000.

In pernicious anemia, a white blood count of 69,000 during remission following liver therapy has been reported.¹

In chronic myeloid leukemia, the differential count of the bone marrow is similar to that of the peripheral blood. The cells are at a slightly less mature level than in the circulating blood. Some observers have described an increased number of megakaryocytes.

In chronic myeloid leukemia, the blood platelets are usually normal or slightly increased in number. There is usually in chronic myeloid leukemia a well marked leukocytosis with counts ranging from 100,000 to 800,000 per cu. mm. A count of 200,000 to 400,000 is frequently found at the time the disease is first discovered.

Lower counts may be found when the disease is more advanced.¹

It was decided that this patient had chronic myeloid leukemia, and the therapeutic agent would be P32, radioactive phosphorus.

SUMMARY

1. A case of chronic myeloid leukemia is presented.
2. The diagnosis and treatment of myelophthisic anemias is discussed.
3. The importance and difficulty of differentiating leukemoid reactions from chronic myeloid leukemia is discussed.

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THE DOCTOR AND THE TRUST DEPARTMENT*

RODMAN WARD**

I have noticed that it is common for a member of the medical profession to have his home telephone number unlisted or at least disguised by being in the name of his wife, and that he finds it necessary to hide out or leave town in order to enjoy a few hours of personal freedom. These practices are not usual for people of other occupations and are not done without reason.

The reason, I believe, is that the doctor more than any other professional man and very much more than the man in business, is subject to frequent, imperative and interruptive demands upon his time.

Also it is peculiarly true of the medical profession that you cannot multiply the number of earning hours in the day, as practically every one else can, by the use of employees and substitutes and by delegation to subordinates. Even a lawyer will have a junior do his research for him, and the hours spent by the junior in digging out the law of the problem will be condensed into a neat memorandum for his employer's benefit.

In a manner of speaking, a doctor's stock in trade is his time. Time available for his practice is, to him, money in a strict sense.

By the way, as a group I understand you are doing pretty well in spite of this special difficulty. I have noticed that the American Bar Association has commiserated with its members in pointing out that incomes of doctors have lately increased at a rate faster than have the incomes of lawyers.

The only non-professional subjects you have scheduled for this session of your Society—taxes, investments and trust departments—all would indicate that you

have successfully converted some of your past time into dollars that have stayed with you and you feel the need of giving them some attention.

I take it, therefore, that you would be interested in how proper attention can be given to your accumulated earnings and to future accumulations so that they will not be lost, will even increase, all at a minimum expenditure of the valuable commodity, the hours in your day. The availability of this kind of service is, I think, the special interest of the doctor, as doctor, in the trust department.

First I would like to explain something of the nature of a trust department, and from that, go on and mention its services best adapted to meet the demands of your special situation.

A trust cannot exist without the involvement of something of value. This is held — is legally speaking *owned* — by the trustee, but only for the benefit of one or more other persons, the beneficiaries. It is an old institution which got along for years without there being any trust companies. However, with the development of the popularity of investments in bonds and shares of stocks and the increased respectability of these forms of property which occurred during the last century as a shift from concentration of investment of accumulated moneys in real estate, a need developed for a professional type of trustee, as opposed to the family friend or the attorney who had commonly filled the bill up to then. The new type of property needed more continuous attention. Also it was more subject to the risks of dishonesty in the individual who, holding legal title to it, sometimes found it easier to convert to his own use than real estate would have been.

Out of this need, developed the corpora-

* Presented at the Annual Meeting, Medical Society of Delaware, Wilmington, 1957.

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tion as a trustee. From the beginning corporate trustees were hybrid affairs. They were also engaged in banking, as are the trust companies in Wilmington, or in the life insurance business, as was the Provident Life Insurance and Trust Company, later split into the Provident Trust Company and the Provident Mutual Life Insurance Company in Philadelphia.

For some reason corporate trusteeship fared better under the same roof with a bank, and now you find an almost but not quite complete concentration of corporate trust business in this country in banking institutions. In England there is a forced separation between banking and trust business.

However, in all well developed and properly run banking institutions which engage in trust business you will find that the trust department is largely a separate entity. This is proper because the nature of trust business and the laws which govern it are as different from the nature of banking business and its laws as is green from red. For example, it is common and proper that the Board of Directors of a trust company has its Executive Committee which attends to the affairs of its banking department, and its Trust Committee which interests itself only with the affairs of the trust department. The officers and other personnel who attend to the business of one department are quite separated from the business of the other department. It is even common that the trust department investments are kept in a completely separate vault under controls that are entirely separate from the controls over the vault of the banking department.

Because of this split personality which has developed in this country, we speak of the trust department. If we were in England we would speak of the trustee company.

Very quickly after the development of the corporation as trustee, the unique combination of qualities and facilities which it offered were found to be desirable for more activities than the strictly fiduciary—that is trusteeship, guardianship and executor-

ship. The trust department was found also to be useful for various forms of agency.

The first of these qualities is financial responsibility. The capital, surplus and undivided profits of the trust institution are a fund available to guarantee this, and in a company of relatively good size they amount to millions of dollars. Banks are subject to so many requirements of reports, of examination by public agencies, of audits and of publication of statements that you can rely on this guarantee fund.

Another of these is that a trust department is at work, full time, in attending to the business of its customers. There is no question of whether its own affairs should be attended to first. It has no business other than the business of its customers. A well-organized trust department has a considerable staff largely made up of people who specialize in one facet or another of its activities. It has people who are constantly watching the security markets and the prospects of the general economy and the economy of individual companies. It has real estate men, and tax men, and people whose duty it is to maintain familiarity with other kinds of law affecting the business of its customers in which it is engaged. The trust department is organized in depth, also, so that illness and vacations do not interfere with its operation. A trust department is also organized in such a way that one customer need not, in ordinary course, run from one man to another, but may limit his contacts to one or two officers with whom he becomes familiar and who acquire familiarity with his wishes and objectives and general situation.

What are the kinds of services which are offered and which may be useful to the doctor? I shall start with those in which you might be interested for yourself, now, as a living person and work into the future.

The simplest, perhaps, is what is called a custody account. This is for the man with investments who wants someone to hold them for him, to collect the income, to watch out for and to notify him when any securities are called for payment or

when rights are issued and the like, and to keep records for him. The custodian service does not provide recommendations for investment changes. I mention it without the idea that it would be widely attractive to this group.

One step beyond this, and of a nature that should be useful for many a doctor, is what is variously called a managing agency account, an investment advisory account, or simply an agency. This embraces all of the services provided in a custody account, plus—and it should be a big plus for the busy professional—regular investment review and recommendation. Such an account is not a trust because the investments remain yours, completely and in all respects, and you retain full control over them, but you are provided with the advice of investment specialists on which to base your decisions. A doctor, whose professional income is limited by the hours of the day available for his practice, obtains through such a relationship with the trust department, an accurate bookkeeper, a responsible custodian, and an experienced and loyal adviser as to his investments. I say “loyal” because a trust department has nothing to sell to him except advice, which it believes is for his best interests. The trust institution does not and must not sell to him securities which it owns, or make side commissions or secret profits out of its business relationships. It maintains itself in an independent position, in a position where its interests do not conflict with those of its customers.

Here, I want to interrupt this catalogue of trust department services to comment on the nature of the investment advice you will get, or perhaps more importantly, to point out what you won't get. Trust investment officers are a *relatively* conservative bunch. They are trained in an atmosphere where “speculation” is a dirty word insofar as their business is concerned. They will not hold out the promise of quick profit through short-term stock market price swings. They will not even say to you “Here is a stock in a little company just started in a new industry which has a good chance of really going places. You might

increase your money in it by ten times over a few years.”

On the other hand they won't say that a government bond is the only safe investment.

They will first ask you what are your general objectives as between a high but sound rate of income return and less income but greater hopes for building up value over a longish period. They will probably ask if part of your fund should be kept in backlog investments to meet some anticipated need for cash, or to meet an emergency which may arise and is not provided for otherwise.

Then, to fit your situation, they may suggest part of your funds be in tax-free bonds, or quality corporation bonds, or preferred stocks, and that the balance—maybe all—be put in common stocks of selected, well-established corporations where the management has proved itself and for which the future holds real promise. They will recommend a reasonable amount of diversification because they will admit they don't pretend to *know* that ABC Company is going to do well, or that XYZ Corporation is positively going to do better.

On what do they base their thinking? The situation in my own company is not atypical even though we think it is as good or better than the next. Of course we subscribe to standard services that provide information and to financial journals that include not only news but comment and recommendation. Then we pay a good big annual fee to an organization that concentrates on study of the future economy of different industries and of the country as a whole, and also makes investment recommendations to us, with reasons. When we wish, we talk to them about this or that problem or situation.

In addition, our investment officers are in touch with the investment officers in the larger banks in Philadelphia, New York or Boston. They make trips, for example, to New York to visit several banks and spend a day gathering the consensus of reliable and informed opinion, not so much from dealers in investments as from others in the

same business as is ours. We also maintain good relations with a number of brokerage houses because quite a few of these have extremely capable researchers and analysts on their staffs, and provide worthwhile ideas.

These are the sources of the grist for our mill, for we must make our own decisions affecting our own customers, informed decisions which are the result of the group judgment of our investment officers and committees based on information and opinion largely gathered elsewhere.

After the managing agency account in the catalogue of trust department services suited to doctors, comes the inter vivos or living trust and here I can only touch on a very complex subject. It has been said that the purposes and forms of trusts are "as unlimited as the imagination of lawyers."

A trust may be established and governed by the will of a dead man or by a written agreement between a living man and the trustee. This latter is the living trust, and it is effective during the life of its creator and usually continues after his death. The creator may keep as much control over it as he wishes, or he may completely divest himself of any control or even of any interest in the property which is subject to the trust. The trust may be revocable—that is it may be cancelled at the will of its creator—or it may be a permanent and irrevocable disposition.

As I said earlier, a trustee is, legally speaking, the owner of the trust property. He is, however, bound not only by the provisions of the trust agreement or of the will in question, but also by an extensive and very special body of law in order to assure that he manages the trust, not in any way for his own benefit but only to the advantage of the beneficiaries—the people who are intended to benefit by the arrangement.

Beyond this law, there is a code of ethics. And I quote with some pride what has recently been written by a justice of the Supreme Court of Oregon, which is: "I assert with confidence that the standards of ethics which trust officers have adopted and

by which they are actually bound are higher than those which bind any other group in the business world."

The living trust is usually adopted—in the place of an agency account—in order to obtain something more than mere help in investments. There are definite tax advantages available under some circumstances. Through a trust, entirely secret arrangements may be made for the benefit of others. As I said before, the creator of a trust may relieve himself completely of what he may consider the nuisance of having to make investment decisions. He may have decided that those fellows know a lot more about it than he does and that he will leave it up to them entirely—for the time being at least.

The agency and the living trust are the two pieces of machinery by which the doctor can obtain from a trust company some or even complete relief from having to spend his valuable time with the care of his investments.

Through one of these, there may be obtained useful psychological assistance toward a successful accumulation program. It is very hard to save under current conditions. Just as a program of paying life insurance premiums is a help along these lines, the doctor may promise himself and tell the trust company that he intends to make periodic additions to his trust or agency account and find he has put himself under sufficient compulsion so that he will follow through with his intentions. He may find that the slight formality required for the withdrawal of money from such an account is just enough to make him think twice—and not spend it.

Under my theory that it is typical both that the medical man lacks time for management of his non-professional affairs and that he has income far above the average, not unusually with some excess which he puts aside or at least wants to put aside in investments, it is not illogical to say that he will find in the trust department of his bank services, in the form of agency or living trust facilities, which are suited to his peculiar needs.

These are of course very far from every kind of way in which trust departments will serve to the advantage of you and your family. You have heard of estate planning. Undoubtedly many of you have received the benefit of it from one source or another. To those and to the others, I would say that too often and too much the estate planner limits himself to statistics about your family, your income and your resources, puts them down on paper and makes rather stereotyped recommendations which will result in certain tax savings and in a sale of the goods or services which the particular estate planner has for sale. There is a lot of value even in such a review of your affairs. But more value can be had if the man you consult will do a little prying into the more personal side of your family and if you will disclose to him your special family worries, the things that make your family different from another, so that the suggestions can be really tailored to you and not simply taken off the shelf as size 42, short.

I am prejudiced, I admit, but I do think that you have a somewhat better chance of this result if you go to the trust department of your bank for a discussion and for suggestions for arrangements you can make while you live which will leave things easier for your wife and children after you die. I *know* that few people have greater experience with human problems, which are sometimes really serious and at other times not so serious as they seem, than does a trust officer. I think this tends to make human values relatively more important to him than they may be to a man in another business.

These human values are important when it comes to a discussion about what you should say in your will. Technical proficiency on the part of the person you consult with is essential but by itself is not enough.

In any event the trust department offers its services, without charge, for discussions leading to recommendations, for the manner in which you may direct the disposition of your property at your death in order to

preserve as much as possible from erosion by taxes and expenses, in order to assure that what you leave will do what you want it to, and in order to provide whatever degree of protection you think members of your family may need. That is estate planning.

The man in the trust department talks to you with a background of experience of the kind that counts—of experience gained from having seen good plans and bad plans in operation over the years.

I could go on with an argument in favor of the bank or trust company as your executor. And I could go with some explanation of the testamentary trust—that is the trust which is established under the terms of your will—and how taxes can be saved by this or that provision. I could talk of the advantages of an insurance trust. The subjects are many and the talking could be endless.

Such things, however, are a little beyond my subject as I see it. I have wanted to give you some appreciation of what trust departments are and how they have developed in answer to a public demand for an institution of financial reliability and integrity, equipped with the technical abilities required for the successful management of invested money in our complex civilization, and yet an institution which has the personal touch—which will handle your money as your money and not as one small part of one vast fund. No one knows to what extent the collective trust departments of this country have been called on for service, and no one knows the total of the values in their care. The confidentiality of the business forbids the collection and publication of such figures. We only know in a general way that they add up to many billions of dollars—which is some indication of how successfully this institution is meeting the demand that brought it into existence.

And, more importantly, I have tried to suggest that the doctor particularly—the man who can't hire people to do his professional work for him—may find in a trust department the answer to some of his special problems.

+ Editorials +

LOVE

When 450 townspeople gather to honor a family doctor, it is obvious that the motive is love—their love for the doctor. Less obvious, but equally important, is the doctor's love for the people; a love demonstrated by years of devoted service.

It is not necessary, however, for a physician to complete 45 years of service before being loved by his patients. Recently, during a heavy snowstorm, a young physician of Delaware walked quite a distance through snowdrifts to see a young child patient even

after being told by the parents that it would be all right to wait until the next day when a path would be cleared.

These are but two examples of the love physicians have for their patients; obviously, many others act likewise without formal recognition.

Congratulations, Dr. Chipman. We, your colleagues, are proud of you and the manner in which you practice the principles for which we all stand.

PROTECTION FOR THE HIGH SCHOOL ATHLETE

There have been an unnecessarily high number of injuries and deaths resulting from high school sports; to curb this rate is a community challenge. Physicians can and should provide much needed local leadership by working with school officials, coaches, parent-teacher groups and the dental association to develop adequate school health and safety programs for sports participants. One practical method is the sponsoring of high school sports injury conferences; this is discussed in a new American Medical Association pamphlet. The

purpose of these conferences is to instruct coaches, athletic directors and team physicians on the early recognition of injuries, appropriate first aid measures and the prompt referral of injured players for medical or dental care. Entitled "*Protecting the Health of the High School Athlete*", the booklet was prepared under the auspices of the AMA's Committee on Injury in Sports. Further information and copies of the booklet may be obtained from the AMA's Bureau of Health Education.

REACTION TO ANTIBIOTICS

In 1952 and 1953 the Food and Drug Administration made a survey of reactions to antibiotics in 11 cities and found 88 cases of anaphylactoid shock, 25 of which were fatal. These were all unreported cases and the drug involved in each case was penicillin, the broad spectrum antibiotics apparently being benign.

A second survey in 1956 revealed 733 anaphylactoid reactions of which 72 died, approximately 10%. These reactions followed the parenteral use of the drug; there were 49 reactions following its oral administration, none of which was fatal.

Study of the author's data reveals some interesting facts.

Penicillin is a highly antigenic drug of which several hundred tons are prescribed annually. With time there will be an increasing number of allergic reactions. Unfortunately, the size of the dose is unimportant, many patients having been "triggered" into severe anaphylactoid shock by minute amounts of the drug.

One patient went into shock following the use of a syringe contaminated with penicillin. Another was that of a woman who prepared a penicillin tablet in a sugar solution for her grandchild; she tasted the solution to determine whether it was sweet enough and quickly went into shock. A third went

into shock immediately following application of penicillin ointment to a skin abrasion. These are merely a few of many instances cited.

It is the responsibility of the medical profession to take seriously this warning and to do all things possible to combat this danger. The first, and obvious, step is to re-evaluate our indications for penicillin therapy and to use the drug only when there exists a definite and valid indication for its use. Such a simple step would do much toward eliminating the occurrence of these serious mishaps.

OPHTHALMOLOGIST - OPTICIAN - OPTOMETRIST

There is a lawsuit pending in Delaware brought by the State Optometric Society and the State Board of Optometry against a Delaware optician. It might be well at this time to get a clear definition of these terms — ophthalmologist, optician, and optometrist.

An *ophthalmologist*, sometimes called an *oculist*, is a doctor of medicine who specializes in the care of the eye and all the related structures. He diagnoses and treats defects of focus, disorders of function, and all other diseases of the eye, prescribing whatever is required, including glasses. As a member of a medical team, he frequently is concerned with diseases of other systems of the body or general diseases which manifest themselves in the eye, such as diabetes, toxemia of pregnancy, cancer, multiple sclerosis, tuberculosis, high blood pressure, and heart disease. *Ophthalmology* is a branch

of medicine and the *ophthalmologist* is an eye physician and usually an eye surgeon.

An *optician* is a skilled technician who supplies and fits glasses on the prescription of a physician. He is trained to make the necessary facial measurements; to make the glasses or other appliances; and to adapt them to the patient. He supplies glasses or other appliances only on the doctor's authorization.

An *optometrist* is a licensed person who has met certain legal and educational requirements and is permitted by the state to engage in the practice of optometry. He is not a physician or a doctor of medicine. He measures the focus of the eye for glasses. He is neither qualified nor permitted to use drugs for these tests or for any other purpose. He is not qualified or permitted to diagnose or treat disease of the eye. He may supply glasses on his own prescription. By law he is a limited practitioner.

WILLIAM THOMAS CHIPMAN, M.D.

On February 24, 1958 about 450 citizens of Harrington honored Doctor Chipman after 45 years of the practice of medicine. The following introduction was presented by the Mayor of Harrington, Dr. Hewitt W. Smith, past-President of the Medical Society of Delaware, Dr. Chipman's colleague.

Mr. Chairman, honored guest of the evening, distinguished guests at the speakers' table, ladies and gentlemen:

When your program chairman, Mrs. Niemish, called me and asked me to make an address of welcome at this testimonial dinner tonight, I gladly accepted the assignment. I was told that I would not be limited in my remarks, nor would there be a time limit.

I am honored by this assignment tonight, because it affords me an opportunity to publicly pay tribute to my esteemed colleague. I have known and worked with Dr. Chipman over the past 24½ years, and during that time, I have come to appreciate his many fine qualities. But I choose not tonight to dwell upon complimentary remarks, for that is the province of the speaker of the evening, but prefer rather to direct your attention to certain aspects of a physician's life which mirrors the sacrifices made by your guest, and which, incidentally, are accepted as a matter-of-fact by the public. Having practiced in this community for nearly 25 years, I feel qualified to discuss these matters and clothe my remarks with a certain aura of authority.

First, I wonder how many of you realize what it means to operate a solo practice on a 24-hour basis, seven days a week? To sleep by the telephone as Dr. Chipman has done for some 45 years? To be constantly interrupted at mealtime by both telephone and doorbell, to spurn the 40-hour week, bankers' hours, bank holidays, paid vacations, and fringe benefits? What, also, does it mean to an individual to put the welfare of his patients first and relegate his own physical welfare, his social life, his associations with his family, and his spiritual life to a secondary position?

I remind you, also, of another facet of a physician's life which is as necessary as all the rest, and which in turn is not seen, and therefore not generally appreciated by the general public. That is the matter of post-graduate education. A large drug company may average a new product from their research departments at the rate of one a week, and there are many drug companies. In the course of a year, many thousands of new products appear on the market. A physician must sift these and apply those which are suitable to the needs of his community. It is said that approximately 75 per cent of the drugs prescribed today were unknown ten years ago. Specialty magazines must be read, new medical books studied, hospital staff meetings attended, as well as medical meetings at stated intervals. It has been stated that a minister could close his Bible and sleep for 100 years, awake and find the Scriptures unchanged, and he could preach as effectively as he did before his long nap. In contrast, a physician who would close his books for a period of a few months would fall woefully behind in the continuing parade of new medications and therapeutic procedures. All of these activities are an added strain on the physician's time and strength.

Your guest has participated in the Golden Age of Medicine. During his years of practice, he has seen and participated in the virtual disappearance of such scourges as typhoid, smallpox, diphtheria syphilis, whooping cough, and more recently, poliomyelitis. These diseases are now so rare that medical schools have great difficulty in finding a case to present to the students. While not eliminated, the sting has been taken out of pneumonia, tuberculosis, staphylococcal and streptococcal infections, childbearing, and certain types of cancer. Your guest has seen the advent of the sulfonamides, penicillin, a host of mycin drugs, the Salk vaccine, an oral medication for certain types of diabetes, the steroids, heart surgery, the radio isotopes, the application of electronics to therapy, as well as teaching via television.

He has seen the advent of good roads and modern transportation. Gone are the days of parking the car on the highway and walking up to the farmhouses through mud or snow, lugging the necessary equipment and medication—and if at night, counting himself fortunate if the householder carried one of his bags and a lantern to light the way.

Additionally, Dr. Chipman has seen fit to discharge his civic responsibilities to the community as manifest by his past activities in: the Harrington Building and Loan Association, Vice-Presidency of The First National Bank, first President of the Harrington Chamber of Commerce, Director of The Kent and Sussex Fair Association, Speaker of the House to Representatives—to recite hut a few.

Let us further take cognizance at this time of the service rendered to Harrington and environs by Dr. Chipman during the grueling 10 years between 1922 and 1933 when he alone gave 24-hour medical service to the community. The fact that he is with us today is a remarkable tribute to the stamina of the human body, and truly, his successor will have his tasks appointed in continuing the noble tradition of "service above self" established here in Harrington by Dr. Chipman, and will have, literally and actually, a large pair of shoes to fill. (I am informed that Dr. Chipman wears size 11's!)

I feel that I would be amiss at this gathering if I did not pay a heartfelt tribute to Mrs. Chipman, whose sympathetic understanding, and gracious acceptance of the trials, tribulations, and vicissitudes attendant upon the dual operation of a household and that of a 24-hour telephone operator have been of such esteemable value to Dr. Chipman, and without whom his service to the community would have been impossible.

I take this moment, now, in my capacity as Mayor of the City of Harrington, to warmly welcome all the friends and neighbors and well-wishers who have assembled here in this auditorium tonight to pay their respects to our first citizen. I am proud to lead off with the opening remarks, and I know that the memory of this testimonial dinner will long endure in Dr. and Mrs. Chipman's storehouse of pleasant memories.

And now, back to the Chairman. . . .

The Chairman then introduced the principal speaker of the evening, Herman C. Brown, Esq. of Dover, one of Dr. Chipman's babies.

I know of no more happy occasion for me to come back to Harrington than the occasion of tonight. I wish to congratulate, with all the sincerity of which I am capable, every person who has contributed in any manner to this dinner. It is a fete, an occasion and an honor which has been long overdue. Certainly I know no more worthy a person to be honored by his friends than your honored guest this evening, Dr. William Thomas Chipman.

In a way, you know, a testimonial dinner to Dr. Chipman was hardly necessary other than to make it a formal gesture. A testimonial dinner by definition, is one where the friends, associates, colleagues, and contemporaries of the person to be honored gather, and by the presence and by what they say, each gives sincere and heart-felt testimony to the accomplishments and the greatness of the individual to be honored. It is not necessary to come to this very fine dinner tonight to hear such testimony to our honored guest. All that is required is that you be present at any gathering of persons, whether it be formal or informal, in the community in which he has lived and served his fellow men throughout his long career, and the conversation will without fail include plaudits to his accomplishments, to his character, to his personality, to his professional skill and, indeed, to his greatness. If there is anything to the old saying that when a person is discussed in his absence that his ears burn, then most assuredly, our guest's ears must burn constantly. In my lifetime it has never been my pleasure to know a man who is more universally liked, and, in fact, more universally loved, by his community than our guest tonight. History may not record his deeds and his accomplishments, for they have not been performed for the benefit of historians, nor have they been performed for the benefit of publicity or to become renowned. They have been done for the little people, the everyday folk—not the type who write history books, not the type who publish newspapers, and not the type who, because of their great wealth and influence, can cause his name to be recorded in the pages of a formal history. Dr. Chipman's popularity has been with the people who needed him most; the people who at a given instant, were suffering either from their own pain or from the pain of having a loved one in distress. It has been that need that Dr. Chipman has so admirably filled, not only by his professional skill, but far above and beyond that, by his personality, his understanding, and by the tower of strength which he personifies, upon which those persons could lean at the time a shoulder was necessary.

I thought tonight that you might possibly like to know something about Dr. Chipman's early life and background, for despite the fact that you all know him well, you might not have been aware of some of these facts. I thought it might be interesting to all concerned to trace his younger days and, indeed, the movements and the great number of circumstances that finally brought him to our city and to our community.

Born the eighteenth of January, 1891, he was named William Thomas Chipman. Throughout his lifetime he has been known by the members of his profession as Bill. As a boy his friends and school acquaintances referred to him as Tom. In my lifetime, I have never heard him referred to other than as Doc Chipman. This, incidentally, is unusual in itself, since it has been my experience that most doctors find being called "Doc", which seems to be their natural nickname, very distasteful. His family had its roots in England. His grandfather, whose name in fact was Chippenham, came to this country and had three sons. One of these three sons settled in Laurel, in a

community which eventually was called Chipman's Mill. It was here that Dr. Chipman, Tom Chipman, in fact, as he was known then, was born. He lived with his parents in this community and graduated from the Laurel Public School. Following this he entered a private school at Baltimore and remained there for one year. Leaving his private school work, Dr. Chipman enrolled at the Maryland University Medical School in Baltimore and was graduated from there in the year 1912. Following his graduation he interned at Lancaster, Pennsylvania, for approximately one year. Leaving Lancaster, he moved to the Grace Hospital in Detroit, Michigan. He completed his internship at the Grace Hospital in Detroit, and went into private practice there. While he was there he met and married his first wife. After practicing for some short period of time in Detroit, his health broke down and he was advised by the doctors who attended him to leave the city and return to the country. Acting upon this advice, he and his family returned to Delaware, and settled down in the town of Felton, which was the place of his early beginnings in this community. It was there that his oldest child, and son, Berlin, was born in 1914. He built and lived in the house in Felton which is now the Fletcher Nursing Home. His second child, and first daughter, Eloise, was born in Felton in 1916. His wife desired that they should return to Detroit, and his health having improved, in 1919 he and his family left Felton and returned to Detroit. He stayed in Detroit for approximately one year. His mother had died in the year 1915, and in 1920 his father died. Possibly influenced by this, Dr. Chipman returned to Delaware in November of 1920, and for the first time came to the city of Harrington where he resided on Weiner Avenue between what are now the homes of Jacob Messner and Abner Hickman, in a house presently lived in and owned by Herman Longfellow. He commenced practice in the city of Harrington, but his life was not to be as uneventful as he might have hoped practicing in a small town in a rural community, such as this was at that time.

In 1921, in June, his wife died. Following quickly upon the heels of this, the Milford Emergency Hospital first opened its doors in July of 1921, providing for the area for the first time a hospital which meant a great deal to the practice of medicine in this community, and provided, for the first time in the area, operating facilities where Dr. Chipman could practice his art of surgery for which he became so well known in the years to come. In 1922 the only other doctor in Harrington, a Dr. Thompson, left this community, and Dr. Chipman was to be, as Dr. Smith has previously told you this evening, the only doctor in the community from the year 1922 to the year 1933.

In the meantime, however, there had been put into motion another series of events which were, indeed, to have a great effect upon the life of our honored guest. A young lady from Salisbury had graduated from The Memorial Hospital Nursing School in Wilmington in the year 1918, and on the fifteenth day of August of the year 1921, this very capable nurse came to the Milford Emergency Hospital to begin a term of employment there. On the next day, August the sixteenth, as she was preparing to assist another surgeon in an operation at this hospital, this lady was confronted by a very large man wearing a green Norfolk suit, the coat of which he had caught in a pump handle and torn the pocket, who looked very harried and in a great deal of haste, and was, in fact, on his way to Rehoboth to a medical association meeting. To describe it, as she de-

scribed it to me, he was certainly not dressed in a manner to go to a medical association meeting. Dr. Chipman has said in later years that the only reason she was ever interested in him at all, and the only reason that she eventually married him and became the Pearl Chipman that we have known for so many years, was that he looked as though he needed someone to take care of him and see that he was properly dressed to present himself at the various places where his profession and his professional standing required him to go.

Their courtship was a whirlwind affair, as it was described to me by Mrs. Chipman. They courted when their professional duties permitted. Both, as all of you know, were very dedicated persons, and the Milford Hospital in its beginning and its pioneer days required all of the skill, the energy and initiative that two persons such as Doc and Pearl Chipman could give it. Many hardships presented themselves and were overcome by their efforts. For example, Mrs. Chipman was in charge of the operating room, and, at that time, the city of Milford did not have daytime electric power. In order to sterilize instruments, Mrs. Chipman has told me, it was necessary to send the instruments which were thought to be required for the next operation by dumbwaiter down into the kitchen and then returned by dumbwaiter to the operating room after having been sterilized by water heated in the kitchen. However, as time was to prove, they were meant for each other, and they overcame the difficulties which they encountered. Mrs. Chipman at that time had only a room in the nurses home where she was not permitted to entertain dates. Dr. Chipman was still residing in the house on Weiner Avenue, but his first wife's parents were living with him and acting as housekeepers and assisting in the care of his two children. Therefore, there was no place for them to go, and as Doc has often said, the only place they had to court was the Ellendale Swamp. Despite, however, all the adversities which I have outlined, and with which the courtship was faced, it was eventually culminated by marriage. And subsequent thereto, in 1933, a child was born of this marriage, Susan, by name, with whom most of you are familiar.

Because of his gruff exterior, and his direct method of approach, many stories have come into existence in regard to our honored guest. Most of these stories, I am sure, have been heard by most of you. But I have attempted to pick out two or three which I thought were particularly good and particularly interesting, that I might tell you this evening in order that those of you who might not have heard them should have the opportunity to, and in order that those of you who have heard them might enjoy hearing them retold.

One of the stories which I have encountered in my search for folklore in regard to our honored guest goes something like this: It seems that there had come into our community a lady who had been doing practical nursing work in other sections of the country, and upon coming to this community to live was in the process of continuing in her chosen field of endeavor. In the course of this she was attending a patient for whom Dr. Chipman was summoned. Upon arrival, Dr. Chipman burst into the room with his hat and bag in hand in his usual gruff, direct manner, took one quick, percursor look at the patient, who was lying in bed obviously in great distress, shook out a handful of pills in an envelope, gave his customary "Now, Honey, take one of these just like I wrote on the envelope. You'll be all right. You'll feel better tomorrow," and dashed off in a mad haste. The practical

nurse was somewhat astonished and overcome by what she had seen occur. She dashed out of the room into the hall, chasing after the Doctor, and asked him to stop. When she finally had chased him to the front door, and had caught up with him, she took him to task, telling him that he should have made an examination—he should have taken the temperature of the patient—that he should have made some physical examination—that he shouldn't have diagnosed so quickly—that he should have exercised, in fact, his bedside manner. Having listened to her very patiently for all of some forty-five or sixty seconds, Dr. Chipman, in the course of going out of the door, turned around and said, "Honey, every time you go to make a pan of biscuits, you don't get the cook book down to see how to make them, do you?" And without pause or hesitation, shut the door and continued on his merry way.

Sometime later, however, a young, attractive and very eligible school teacher came to Harrington. She is known to many of you, and she, in fact, still resides in our community. Her name is Leona Dickraker. Shortly after she came to this community, she was taken ill and Dr. Chipman was summoned to her bedside. Apparently deciding to take the advice of the practical nurse, who had previously taken him to task, Dr. Chipman decided that this was a point where his bedside manner might be exercised to its best advantage. Slowing himself down, approaching the situation very calmly, he put down his satchel, laid his hat and coat aside and sat down on the edge of the bed to make a very thorough examination of this particular patient. The unfortunate part of it all was that in the course of sitting down on the edge of the bed, the bed gave way under his weight and broke down, depositing both him and his patient on the floor. It was probably at this point that Dr. Chipman, for all time, gave up any practice of bedside manner, as it is known among physicians.

Probably, however, the most often told story about Dr. Chipman involved a brush with the officers of law enforcement. He has been famous for years for his fast driving and his speed when on a call and his speed to and from the Milford Hospital when his presence was needed for some emergency. In the course of driving, as we all know him to drive, he has had several encounters with the law because of his speed. However, in one particular instance he and another person very well known in Harrington, whose name is Booty Morris, were proceeding down the highway bound for some unknown destination which is not important in the telling of this story. As usual, Doc was exceeding the speed limit. Looking in his rear view mirror, he saw that he was being pursued by a minion of law enforcement. Turning quickly to Booty, and making his usual snap decision, he said, "Booty, throw a fit." Booty, not realizing what was happening, looked around askance. Doc said, "Hurry up, throw a fit. That cop's about to get us." Booty proceeded in accordance with Doc's instructions to throw a fit, going through all sorts of gyrations, pushing himself down on to the floor of the car and putting on quite a display. When the cop drew alongside and commenced to berate Dr. Chipman regarding his driving, Doc's reply was quick, immediate, and gruff, as usual. "My God, man, I'm trying to get this man to the hospital. Can't you see he's having a fit. Get out of my way and let me go." The cop did, and I think it's one of the most fabulous stories in that collection that can be made of stories concerning our honored guest.

Beginning at approximately 1914, when he was living in the town of Felton, and continuing throughout the period from 1920, when he has

resided and practiced in the city of Harrington, the name of "Doc Chipman" has become legend in this community. Those of you who are here tonight, in the main, became acquainted with him when adversity was present in your lives, when you were sick or ill, or when a loved one was in need. He has always been the same. He has always been in a hurry. He'll never be other than gruff, outwardly at least. His efficiency and professional skill have always been of the highest. He has brought a blush to many a young girl's face by his quick remarks and ready wit. He has always been a friend of those who are in need of a friend. But possibly his most important asset is the one that is so intangible that it almost defies description. I refer to his tremendous strength, not only physical strength, but strength of personality and character on which so many persons, and probably most of you, have seen fit to lean in time of need. This includes his ability to carry the burdens of so many other persons, to listen to their trials and their troubles and tribulations; to counsel them as well as to tend them when they are physically ill. His ability, through the use of a very few words, to comfort a person who has just lost a loved one; his ability to inspire confidence in a patient by his very presence; his ability to soothe even a small child who really cannot understand his words, but who senses instinctively that this is the man who will make the hurt better—these are, indeed, the assets required for greatness, and these are a part of the makeup of Dr. Chipman. His ability to walk into a house where a family is gathered because of illness of one of its members, and the confidence which his presence inspires—has ability to walk into a sick room and make a patient feel better before he has set down his bag—these are the attributes of greatness. This is the strength of character, the force of personality and the quiet confidence which oozes from the man. These are also the attributes which would have made him great in whatever his chosen field of endeavor might have been. Had he been a statesman, more likely history would have recorded his acts and deeds, because he would have been a great statesman. Had he been a general, he would have been a great general; again the world would have heard of

Tom Chipman. Instead he was a doctor. Not only was he a doctor, but he chose to practice in this rural community where transportation was difficult, and where his size was an asset to the pushing of a Model T out of the mud. And also where communications were limited, and where his prowess and ability could be recognized only by those whom he served. That is the reason that it is time that his friends, his patients, his associates should gather here tonight to pay tribute to this man who has given so much of his life, his energies, his strength and his skill to this community, to its individual members and to those of you who are gathered here tonight. The fact that he has so chosen to lead a more anonymous life in a rural community only magnifies, in my estimation, the greatness of the man of which I have already spoken.

Let it suffice to say that a speaker could spend the entire evening extolling his virtues without running the risk of being repetitious. Many individual cases and situations could be pointed out. You could be told of his many accomplishments in civic and political fields, which the other speakers have covered this evening. I would like to conclude what I have to say about Dr. Chipman in this manner. I would like to say that in 1920, by a simple decision to return to the city of Harrington to establish a practice, it was the world's loss and Harrington's gain. It was the addition to this community of a man who has given more of himself to the community than anyone who has resided here in this same period or, in fact, in any period. I think that though it be an ordinary phrase and could not be considered eloquent, that there is only one way which, speaking for the community, I can express our appreciation to you, Dr. Chipman. I can only say, "Thank you." I do say this from the bottom of my heart, and in so doing, I speak for all those assembled here. I would like to say further that the standing ovation and the applause which you are about to hear is neither for this speaker nor for any alleged eloquence of his delivery. The applause which you are about to hear, Dr. Chipman, is the method by which these persons, these friends of yours, gathered here, are also saying, "Thank you, Dr. Chipman."

What is the Difference Between THE WORLD MEDICAL ASSOCIATION and THE WORLD HEALTH ORGANIZATION?

THE WORLD MEDICAL ASSOCIATION

1. WMA is an organization of national medical associations. The unit of membership is the most representative national medical association in each country. It is completely non-governmental. It is not part of the U.N. It is a voluntary organization.
2. WMA represents the practicing medical profession.
3. WMA was organized in 1947 by AMA representatives and Western European medical leaders. Purpose was to exchange medical knowledge, to protect the freedom of medicine, and promote world peace.
4. Each member association sends two delegates, two alternate delegates and observers to the General Assemblies — the supreme policy making body of WMA.
5. The executive body of WMA is the Council. This meets twice a year and comprises 11 members elected from the Assembly and the President, President-Elect and Treasurer.
6. WMA is supported by members' dues and contributions and the annual budget is about \$165,000.
7. American physicians and allied corporations interested in the work of WMA

are organized as the United States Committee of The World Medical Association.

THE WORLD HEALTH ORGANIZATION

1. WHO is an intergovernmental health agency. The members are the governments that accept the nine principles upon which WHO is founded.
2. WHO represents governments in their public health and medical activities.
3. WHO is the result of proposal of U.N. in 1945 to create a specialized agency to deal with all matters related to health on a world-wide scale.
4. Each member government sends three delegates, chosen preferably from the national health administration of the government, to the annual World Health Assembly.
5. The Executive Board of WHO is the executive body and consists of 18 members elected to represent 18 member governments.
6. WHO is supported by dues allocated by the U.N. scale and the budget for 1958 is \$13,000,000.
7. American citizens interested in the work of WHO are organized as the Citizens' Committee for the World Health Organization.

THE AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

The 36th annual scientific and clinical session of the American Congress of Physical Medicine and Rehabilitation will be held August 24-29, 1958 inclusive, at The Bellevue Stratford Hotel, Philadelphia.

Scientific and clinical sessions will be given August 25, 26, 27, 28, and 29. All sessions will be open to members of the medical profession in good standing with the American Medical Association.

Full information may be obtained by writing to the Executive Secretary, Dorothea C. Augustin, American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, Illinois.

Professional people who are called upon to investigate and report on fluoridation, will now find a package library of authoritative reference material available to them at the library at the Academy of Medicine

in Wilmington, or will be able to borrow the material, on a "loan basis", from the State Department of Health.

Among other items, the package library presently contains reports from the National Research Council, and technical papers on the "Medical Aspects of Excessive Fluoride in a Water Supply", the "Non-dental Physiological Effects of Trace Quantities of Fluorine", and "Urinary Fluoride Levels Associated with Use of Fluoridated Waters".

The "loan" copy of the package library can be borrowed for a period of one week, by writing to

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Dover, Delaware



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Pro-Banthine® “proved almost invariably effective in the relief of ulcer pain,

*in depressing gastric secretory volume and in inhibiting gastrointestinal motility.”**

“Our findings were documented by an intensive and personal observation of these patients over a 2-year period in private practice, and in two large hospital clinics with close supervision and satisfactory follow-up studies.”*

Among the many clinical indications for Pro-Banthine (brand of propantheline bromide), peptic ulcer is primary. During treatment, Pro-Banthine has been shown repeatedly to be a most valuable agent when used in conjunction with diet, antacids and essential psychotherapy.

Therapeutic utility and effectiveness

of Pro-Banthine in the treatment of peptic ulcer are repeatedly referred to in the recent medical literature.

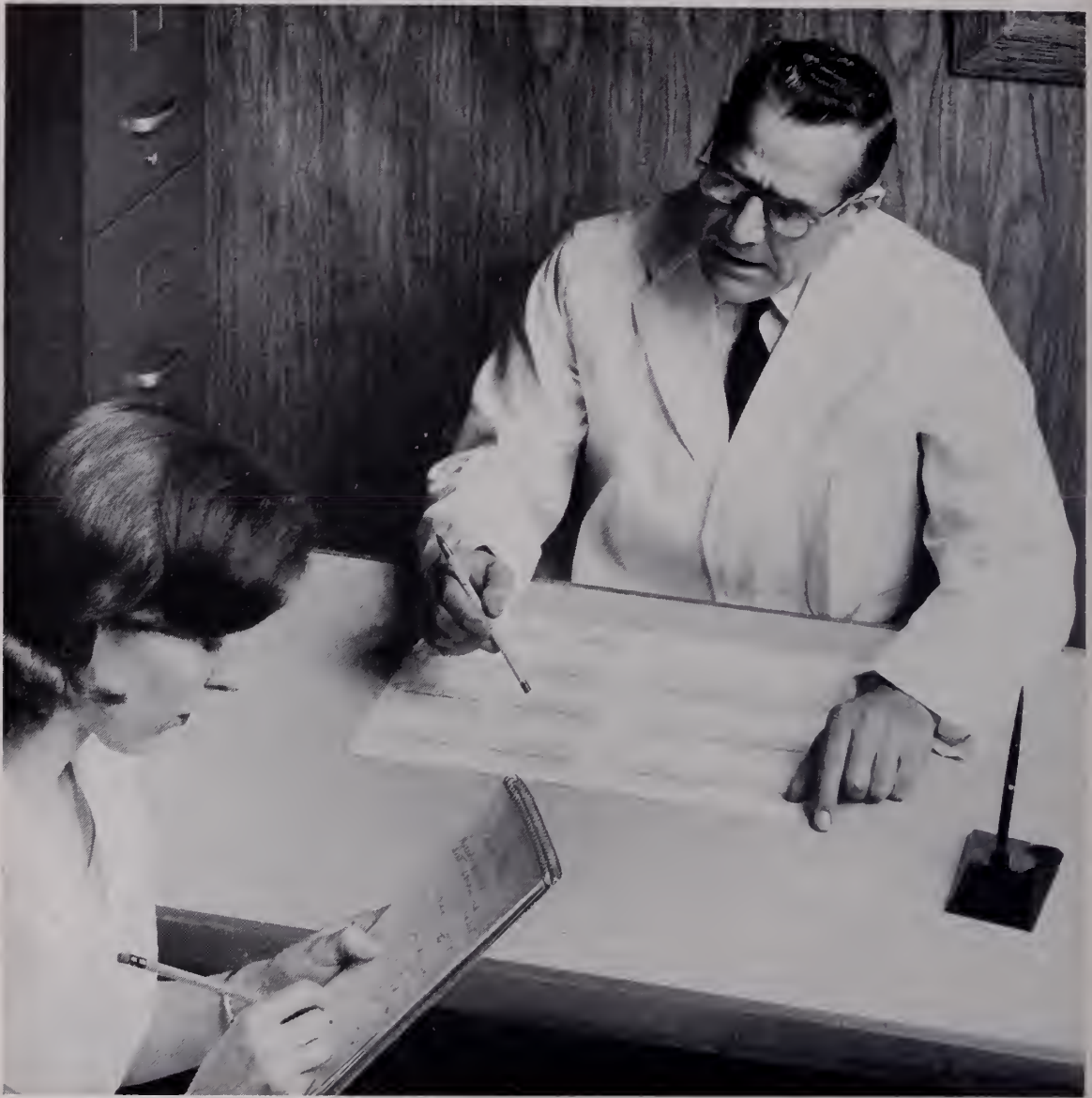
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The average adult oral dosage of Pro-Banthine is one tablet (15 mg.) with meals and two tablets at bedtime.

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Research in the Service of Medicine.

*Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Pro-Banthine in the Treatment of Peptic Ulcer. A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies. Report of 60 Cases, Am. J. M. Sc. 232:156 (Aug.) 1956.

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“Nocturia and orthopnea have disappeared since he’s on NEOHYDRIN—and he’s edema-free when he wakes in the morning.”

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BENEFITS:

- The only orally effective nonmercurial agent with diuretic activity equivalent to that of the parenteral mercurials.
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- Promotes balanced excretion of sodium and chloride—without acidosis.

Any indication for diuresis is an indication for 'DIURIL':

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The dosage of other antihypertensive medication (reserpine, veratrum, hydralazine, etc.) is adjusted as indicated by patient response. If the patient is established on a ganglionic blocking agent (e.g., 'INVERSINE') this should be continued, but the total daily dose should be *immediately* reduced by 25 to 50 per cent. This will reduce the serious side effects often observed with ganglionic blockade.

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The patient must be frequently observed and careful adjustment of all agents should be made to determine optimal maintenance dosage.

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diagnosis: hypertension, moderate to severe

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Relief of symptoms is produced rapidly, blood pressure is lowered and tranquility ensues . . . with a minimum of side effects.

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'Cardilate' tablets  shaped for easy retention
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"... the degree of increase in exercise tolerance which sublingual erythrol tetranitrate permits, approximates that of nitroglycerin, amyl nitrite and octyl nitrite more closely than does any other of the approximately 100 preparations tested to date in this laboratory."

"Furthermore, the duration of this beneficial action is prolonged sufficiently to make this method of treatment of practical clinical value."

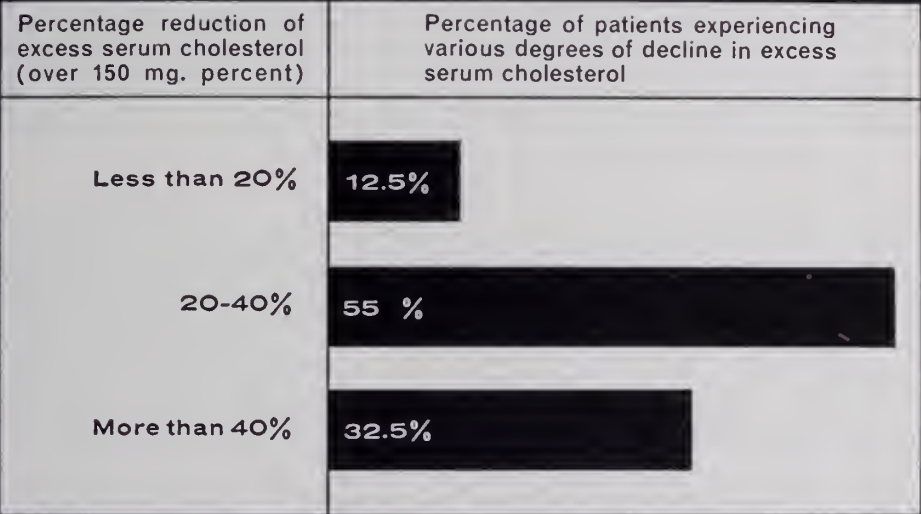
Riseman, J. E. F., Altman, G. E., and Koretsky, S.:
Nitroglycerin and Other Nitrites in the Treatment of
Angina Pectoris, *Circulation* (Jan.) 1958.

*'Cardilate' brand Erythrol Tetranitrate SUBLINGUAL TABLETS, 15 mg. scored



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... without the necessity of dietary restrictions

'Cytellin' provides the most rational and practical therapy available. Without any dietary adjustments, it lowers elevated serum cholesterol concentrations in most patients.

In a number of studies, every patient who co-operated obtained good results from 'Cytellin' therapy. On the average, a 34 percent reduction of excess serum chole-

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In addition to lowering hypercholesteremia, 'Cytellin' has been reported to effect reductions in C/P ratio, S_f10-100 and S_f12-400 lipoproteins, "atherogenic index," beta lipoproteins, and total lipids.

May we send more complete information and bibliography?

*'Cytellin' (Sitosterols, Lilly)



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TETRACYCLINE (PHOSPHATE-BUFFERED) AND NYSTATIN

Combines ACHROMYCIN V with NYSTATIN

SUPPLIED:

CAPSULES contain 250 mg. tetracycline HCl equivalent (phosphate-buffered) and 250,000 units Nystatin. **ORAL SUSPENSION** (cherry-mint flavored) Each 5 cc. teaspoonful contains 125 mg. tetracycline HCl equivalent (phosphate-buffered) and 125,000 units Nystatin.

DOSAGE:

Basic oral dosage (6-7 mg. per lb. body weight per day) in the average adult is 4 capsules or 8 tsp. of ACHROSTATIN V per day, equivalent to 1 Gm. of ACHROMYCIN V.

ACHROSTATIN V combines ACHROMYCIN[†] V... the new rapid-acting oral form of ACHROMYCIN[†] Tetracycline... noted for its outstanding effectiveness against more than 50 different infections... and NYSTATIN... the antifungal specific. ACHROSTATIN V provides particularly effective therapy for those patients prone to monilial overgrowth during a protracted course of antibiotic treatment.

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*Tests in a series of 25 patients show that there is "a definite and distinct lowering [of both volume of secretions and of free hydrochloric acid] in the majority of patients. . . . No patients had shown any increase in gastric secretions following administration of the drug."¹

Now you have 4 advantages when you calm ulcer patients with ATARAX:

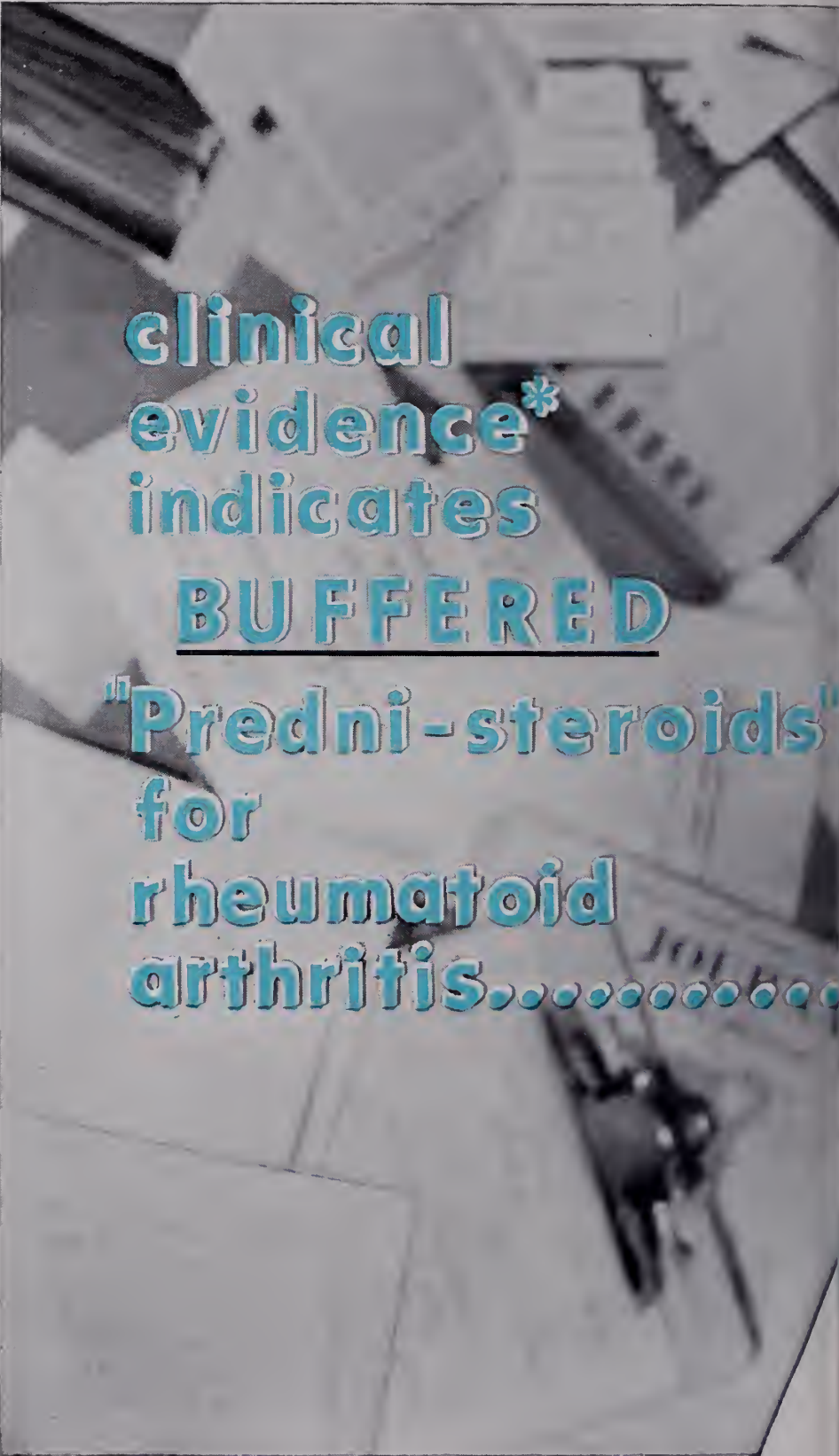
1. ATARAX suppresses gastric secretions; others commonly increase acidity.
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4. Five dosage forms give you maximum flexibility.

supplied: 10, 25 and 100 mg. tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.

references: 1. Strub, I. H.: Personal communication. 2. Ayd, F. J., Jr.: presented at Ohio Assembly of General Practice, 7th Annual Scientific Assembly, Columbus, September 18-19, 1957.



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clinical
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Gastric distress accompanying "predni-steroid" therapy is a definite clinical problem—well documented in a growing body of literature.

... of the beneficial res-
served when antacids
dets were used concom-
prednisone and predni-
fect that these measures
employed prophylacti-
set any gastrointestinal
"—Dordick J. R. *et al.*
J. Med. 57:2019 (June

* It is our growing con-
tent that all patients receiving
and steroid should take care
distress after food or with ade-
quate buffering with aluminum
or magnesium hydroxide prep-
arations. —Snyder, J. W. and
Fusign, D. C. J. Kentucky
State M. A. 54:751 (Sept.) 1956.

* The apparent high inci-
dence of this serious gastric
side effect in patients receiving
prednisone or prednisolone
suggests the advisability of
routine coadministration of an
aluminum hydroxide gel. —
Baker, A. J. and Bunim, J. Jr.
J. A. M. A. 178:159 (June 11)
1955.

One way to make sure that patients receive full benefits of "predni-steroid" therapy plus positive protection against gastric distress is by prescribing CO-DELTRA or CO-HYDELTRA.

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provide all the benefits
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plus positive antacid protection
against gastric distress

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2.5 mg. or 5.0 mg. of prednisone
or prednisolone, plus 300 mg. of
dried aluminum hydroxide gel
and 50 mg. magnesium trisili-
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pHisoHex maintains normal skin pH, cleans and degerms better than soap. In acne, it removes oil and virtually all skin bacteria without scrubbing.

For best results—four to six washings a day with pHisoHex will keep the acne area "surgically" clean.

1. Hodges, F. T.: *GP* 14:86, Nov., 1956.

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nonalkaline
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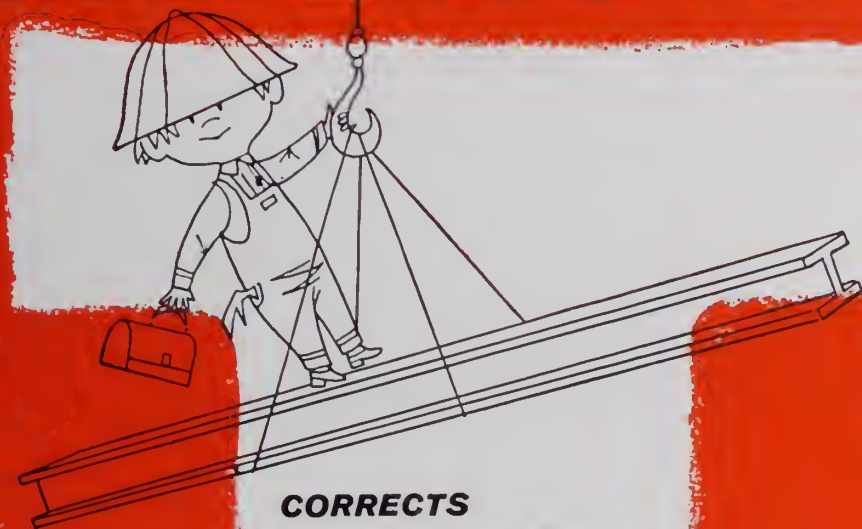
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**DELICIOUS CHERRY FLAVOR
DESIGNED TO APPEAL TO
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PARTICULARLY FOR CHILDREN

Supplies essential Iron as ferric pyrophosphate, highly stable, well-tolerated, readily absorbed; essential vitamins B₁, B₆ and B₁₂, established as appetite stimulants; essential L-Lysine for greater protein economy in the pediatric diet.



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FORMULA: Each teaspoonful (5 cc.) contains:

L-Lysine HCl	300 mg.
Ferric Pyrophosphate (Soluble)	250 mg.
Iron (as Ferric Pyrophosphate)	30 mg.
Vitamin B ₁₂ Crystalline	25 mcgm.
Thiamine Mononitrate (B ₁)	10 mg.
Pyridoxine HCl (B ₆)	5 mg.
Alcohol	0.75%

Average dosage is 1 teaspoonful daily.
Available in bottles of 4 fl. oz.

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**Confirmed by
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Hydrocortisone 0.5% and Special Coal Tar Extract 5%
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J.A.M.A. 166:158, 1958; Welsh, A.L. and Ede, M.
“...prompt remissions of...acute phases.”
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2. Bleiberg, J.: J. M. Soc. New Jersey 53:37, 1956.
3. Abrams, B. P. and Shaw, C.: Clin. Med. 3:839, 1956.
4. Welsh, A. L., and Ede, M.: Ohio State M. J. 50:837, 1954.
5. Bleiberg, J.: Am. Practitioner 8:1404, 1957.

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The reasons are fairly simple. Doctors like “Premarin,” in the first place, because it really relieves the symptoms of the menopause. It doesn’t just mask them — it replaces what the patient lacks — natural estrogen.

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and even after, “Premarin” takes care of that, too.

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MY DAD — HE HURT HIS BACK REAL BAD

"It happened
at work
while he
was putting
oil in
something"



"He told
Mom his
shoulder
felt like
it was on
fire"



"He couldn't
swing a bat
without
hurting"



"But Doctor
gave him
some nice
pills--and
the pain
went away
fast"



"Dad said
we'd play
ball again
tomorrow
when he
comes home"



AND THE PAIN WENT AWAY FAST

FOR PAIN Percodan® TABLETS

(Salts of Dihydrohydroxycodeinone
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ACTS FASTER...
usually within 5-15 minutes

LASTS LONGER...
usually for 6 hours or more

MORE THOROUGH RELIEF...
permits uninterrupted sleep through the night

RARELY CONSTIPATES...
excellent for chronic or bedridden patients

and now... NEW Percodan- Demi

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New "demi" strength permits dosage flexibility to meet each patient's specific needs. PERCODAN-DEMI provides the PERCODAN formula with one-half the amount of salts of dihydrohydroxycodeinone and homatropine.

AVERAGE ADULT DOSE: 1 tablet every 6 hours. May be habit-forming. Available through all pharmacies.

Each PERCODAN® Tablet contains 4.50 mg. dihydrohydroxycodeinone hydrochloride, 0.38 mg. dihydrohydroxycodeinone terephthalate, 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. phenacetin, and 32 mg. caffeine.

Literature? Write



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release from pain and inflammation

with **BUFFERIN[®]**
IN ARTHRITIS

salicylate benefits with
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Rapid and prolonged relief—with less intolerance. The analgesic and specific anti-inflammatory action of BUFFERIN helps reduce pain and joint edema—comfortably. BUFFERIN caused no gastric distress in 70 per cent of hospitalized arthritics with proved intolerance to aspirin. (Arthritics are at least 3 to 10 times as intolerant to straight aspirin as the general population.¹)

No sodium accumulation. Because BUFFERIN is sodium free, massive dosage for prolonged periods will not cause sodium accumulation or edema, even in cardiovascular cases.

Each sodium-free BUFFERIN tablet contains acetyl-salicylic acid, 5 grains, and the antacids magnesium carbonate and aluminum glycinate.

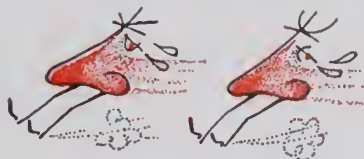
Reference: 1. J.A.M.A. 158:386 (June 4) 1955.

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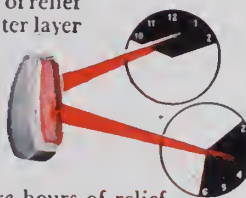
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JUNE, 1958

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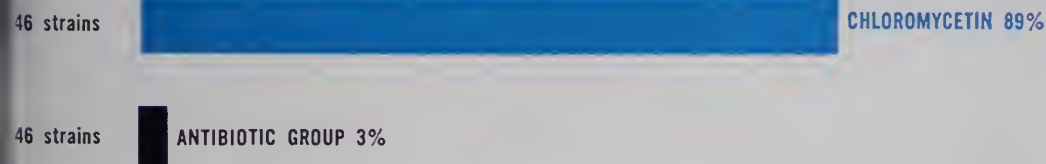
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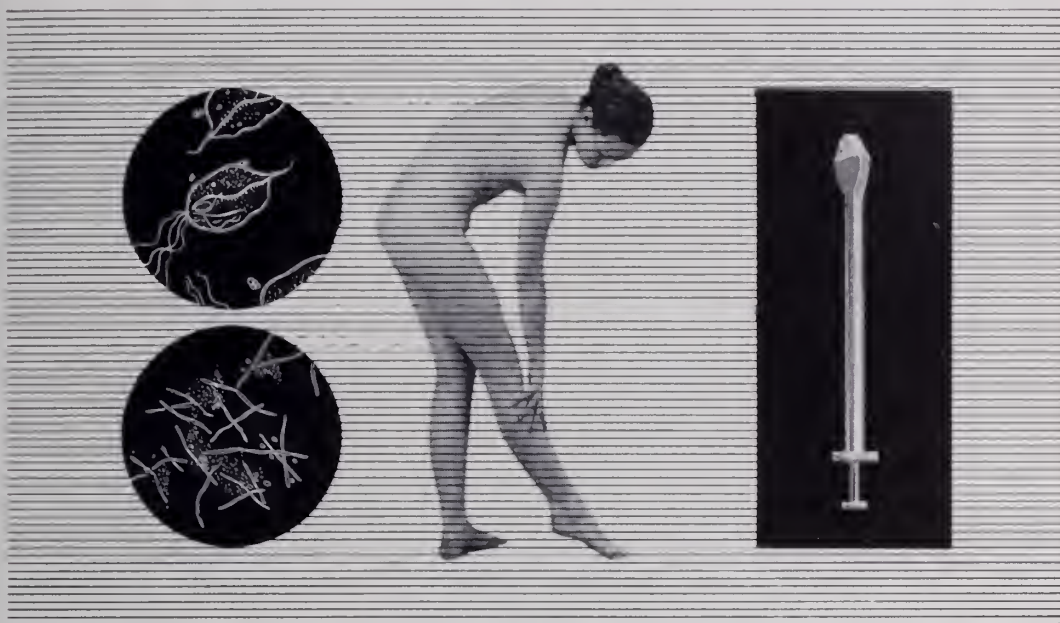
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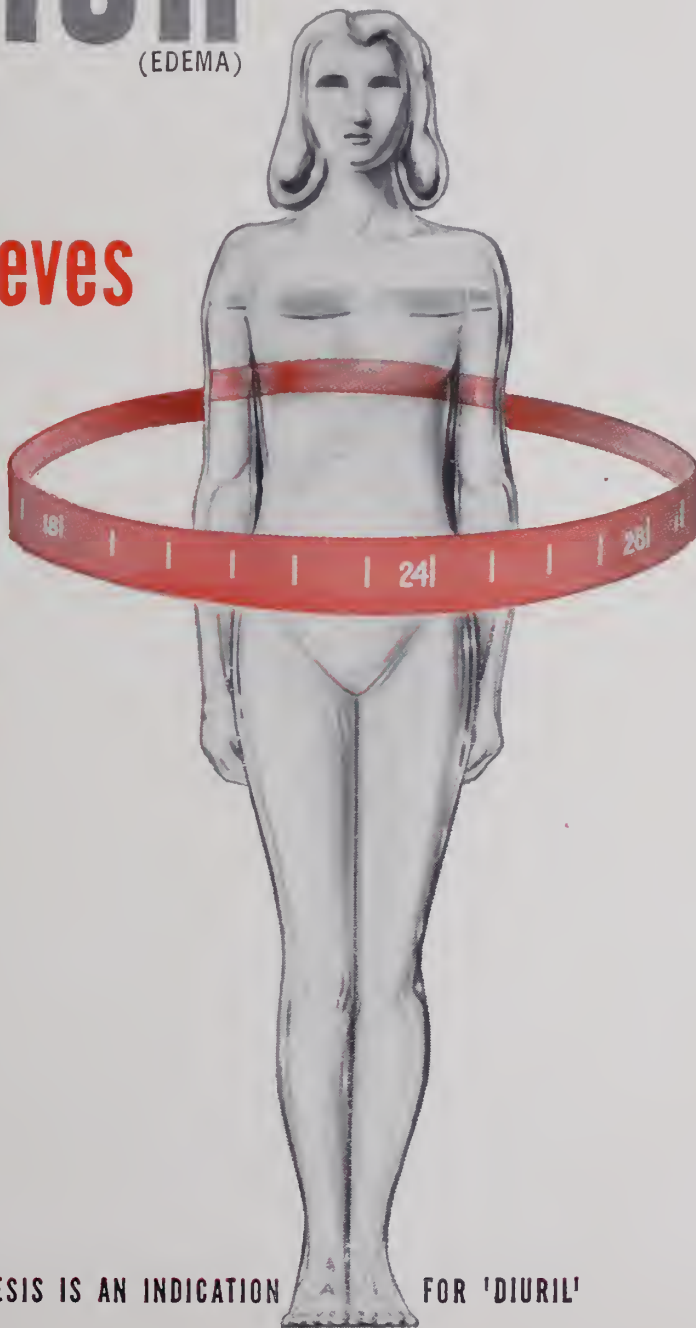
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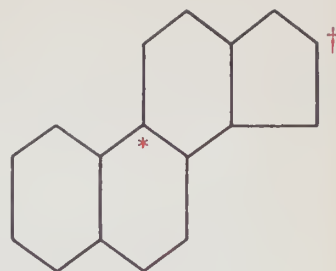
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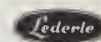
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with
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on:

Kidney function

Animal studies on ARISTOCORT¹ have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.¹ Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.² Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.³ Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.^{4,5} In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.^{6,7}

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.¹ Potassium balance studies in humans^{2,3} revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.^{6,7}

Calcium and phosphorus

Phosphate excretion in animals¹ was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies³ demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.³ At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.^{2,3}

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.⁸



Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.¹

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet¹ and cottonball⁹ tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.¹⁰ Clinical studies¹¹ of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.¹² The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

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The Promise of Aristocort[®]

in Reduction of Side Effects

◊ It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are reported below.

Peptic Ulcer

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case¹). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,² and toxic syndromes producing even convulsions and death.³

Since the onset of these complications is not directly related to duration of steroid administration,⁴ the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.⁵ Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.^{1,6}

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.^{7,8} Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.¹ These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, light-headedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,⁹ 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),⁵ and in inflammatory and allergic skin diseases (33-50 per cent).^{10,11}

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in lower incidence of major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort

in Rheumatoid Arthritis

Dosage and course of therapy

ARISTOCORT therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.

Significant is the fact that most patients were severe arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates¹ treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of ARISTOCORT sufficient to control arthritic symptoms.*

Hartung² treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Respiratory Allergies

◇ About 200 patients with respiratory allergies have been treated with ARISTOCORT for continuous periods up to eight months.

Results of treatment

Sherwood and Cooke^{1,2} gave ARISTOCORT to 42 patients with bronchial asthma and allergic rhinitis. Average dose needed to control the asthmatic group was approximately 6 mg. per day (range, 2 to 14 mg.). Results, which were called "good to excellent" in all but four, were achieved on one-third less than similarly effective doses of prednisone or prednisolone.

The investigators noted other major improvements in ARISTOCORT therapy over the older steroids. There was no increase in blood pressure in any patient: *on the contrary, in 12 patients, there was reduction of pressure when they were transferred to ARISTOCORT.* One patient had required auxiliary antihypertensive drug therapy; over a nine-week period on ARISTOCORT, the pressure gradually fell from 206/100 to 136/79. In another case, the pressure slowly dropped from 205/105 to 154/86.

The number of cases in which these investigators tried ARISTOCORT in allergic rhinitis was not large enough to provide significant averages. However, the range of effective therapy was from 2 to 6 mg. per day. These strikingly low daily doses resulted in control of all signs and symptoms.

Schwartz³ treated 30 patients with chronic, intractable bronchial asthma. At an average daily dose of 7 mg., he reported "good to excellent" results in all but one. Spies,⁴ Barach⁵ and Segal,⁶ reported similar results at average daily maintenance doses of 4 to 10 mg. of ARISTOCORT.

Dosage and course of therapy

The initial dosage range recommended is 8 to 14 mg. of ARISTOCORT daily. Although a rare, very severe case may require more than this on the first day of therapy, these dosages will usually result in prompt alleviation of dyspnea, wheezing and cyanosis. Patients are soon able to carry out a normal span of daily activity.

The maintenance level is arrived at by reduction of the total daily dose every three days in decrements of 2 mg.; in the over-all series, the average daily dose for bronchial asthma is approximately 8 to 10 mg. and for allergic rhinitis, 2 to 6 mg. per day. All total daily doses should be divided into four parts and given with meals and at bedtime. As in every condition where corticosteroids are employed, each patient's treatment should be individualized and the maintenance arrived at by careful titration against signs and symptoms of disease.

Patients with chronic bronchial asthma may require steroid therapy for several months. And since asthma may be associated with cardiac disease, especially in the older age groups, ARISTOCORT is particularly useful because of its ability to cause excretion of sodium and water.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Nephrotic Syndrome

- Fourteen patients with the nephrotic syndrome have been treated with ARISTOCORT for continuous periods of up to six weeks.

Results of treatment

Hellman and associates^{1,2} noted that ARISTOCORT, because of its favorable electrolyte effects, may well be the most desirable steroid to date in treatment of the nephrotic syndrome. However, thus far its use has been reported in only 14 children, of whom 8 had a complete diuresis and disappearance of all abnormal chemical findings. Four of the patients had diuresis, but continued to show some abnormal chemical findings, while two patients with signs of chronic renal disease failed to respond.

Dosage and course of therapy

In order to produce maximal response, 20 mg. should be given daily until diuresis occurs. The dose should then be decreased gradually and maintained around 10 mg. a day. After the patient has been in remission for some time, it may be advisable to diminish the dose gradually and discontinue ARISTOCORT.

in Pulmonary Emphysema and Fibrosis

- Eleven patients with pulmonary emphysema and/or fibrosis were treated with ARISTOCORT for continuous periods of over two months.

Results of treatment

Only small series of cases observed by Barach,³ Segal,⁴ and Cooke,⁵ are available. Barach treated patients who were not adequately controlled by prednisone, with the same dose of ARISTOCORT with significant improvement.

Dosage and course of therapy

The initial suppressive dose range recommended is 10-14 mg. daily. Frequently, there is a prompt decrease in cyanosis and dyspnea, with increase in vital capacity.

The average maintenance dose level was 8 mg. a day. If it is desired to maintain a patient on continuous therapy for some months, dosages as low as 2 mg. a day have been successful. All decreases in dosage should be gradual and at a rate of 2 mg. decrements in total daily amount, every two to four days. The daily dosage is divided into four parts and given with meals and at bedtime.



in Neoplastic Diseases

◊ *Forty-four children and adults have been given ARISTOCORT for palliative treatment of acute leukemia, chronic lymphatic leukemia, lymphosarcoma, lympholeukosarcoma and Hodgkin's disease.*

Results of treatment

Farber⁶ has treated 22 children with acute leukemia for an average of three weeks. Of the 17 observed long enough to judge the efficacy of the medication, he rated five as excellent, three as good, two as fair and seven as poor responses.

Hellman and associates⁷ gave ARISTOCORT to a group of patients with the various lymphomas in doses of 40 to 50 mg. a day—occasionally up to 100 milligrams. Treatment was continued in some cases for 17 weeks. Response was classified as good for the palliative purposes for which the drug was given.

Dosage and course of therapy

Massive initial suppressive doses of 40 to 50 mg. per day in children (1 mg./kg./day) and up to 100 mg. a day in adults have been administered.

Responses to any specific dosage in these conditions vary so widely that only a general dosage range can be indicated. Treatment

must be individualized; rate of reduction in dosage and determination of maintenance levels cannot be categorized.

Miscellaneous

Patients with various other diseases have been treated by several clinical investigators. These include patients with osteoarthritis, acute bursitis, rheumatic fever, spondylitis, other "collagen-vascular" diseases (dermatomyositis, etc.), thrombocytopenic purpura, chronic eosinophilia, hemolytic anemia, diuretic-resistant congestive heart failures, and adrenogenital syndrome.

There have not been sufficient patients in any of the above categories to permit definitive treatment schedules to be finally established for ARISTOCORT. Additional studies are now in progress and physicians desiring information on any of these diseases are requested to write to Lederle Laboratories, Pearl River, New York for available data.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Inflammatory and Allergic Skin Diseases

- Over 200 patients with allergic and inflammatory skin diseases (including psoriasis, atopic dermatitis, exfoliative dermatitis, pemphigus, dermatitis herpetiformis, eczematoid dermatitis, contact dermatitis and angioneurotic edema) have been treated continuously with ARISTOCORT for periods of up to eight months.

Results of treatment

Rein and associates¹ treated 26 patients with severe dermatitis. Twenty-four had been on prednisone when changed to ARISTOCORT. While some had found satisfactory symptomatic relief, others had also developed side effects—moon face, buffalo hump, increased appetite with excessive weight increases and gastro-intestinal disturbances.

These investigators determined the equivalent dosage of ARISTOCORT to be approximately two-thirds that required to control symptoms on the previous corticosteroid. Thirteen of the 26, who had developed moon face, noted either an actual decrease or no further increase when transferred to ARISTOCORT. In addition: *Voracious appetites disappeared, with loss of weight in 11 patients; there was no elevation in blood pressure, and no necessity to restrict sodium or administer supplemental potassium.* Sherwood and Cooke,² and Shelley and Pillsbury³ obtained similar results in allied disorders.

Hollander⁴ first observed that ARISTOCORT appears to have striking affinity for the skin and great activity in controlling such diseases as psoriasis, for which other corticosteroids have been indifferently effective. Shelley and Pillsbury,³ in 50 cases of acute extending psoriasis found that over 60 per cent were markedly improved.

Dosage and course of therapy

The recommended initial suppressive dose range is 14 to 20 mg. per day. In very severe cases, temporary dosages up to 32 mg. a day

have been successfully employed. Once lesions are suppressed, gradually reduce dose to the maintenance level—which may be as low as 2 mg. per day.

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in Disseminated Lupus Erythematosus

- Forty patients with disseminated lupus erythematosus were treated with ARISTOCORT for continuous periods of up to nine months.

Results of treatment

Patients have responded very promisingly to therapy. Dubois¹ has had the largest single experience (28 cases) with ARISTOCORT in the treatment of this disease. He reported 25 of the 28 responded favorably.

Freyberg,² Hartung,³ Hollander,⁴ Spies,⁵ and Segal,⁶ each in smaller series of cases, reported similarly good therapeutic responses.

Dosage and course of therapy

The initial suppressive dose recommended is 20-30 mg. daily. Once the desired effect is achieved, the dose should be reduced gradually to maintenance levels (3 to 18 mg. per day).

In severely ill patients large doses may be required for several days in order to preserve life. Even on these large doses, edema and sodium retention have not occurred.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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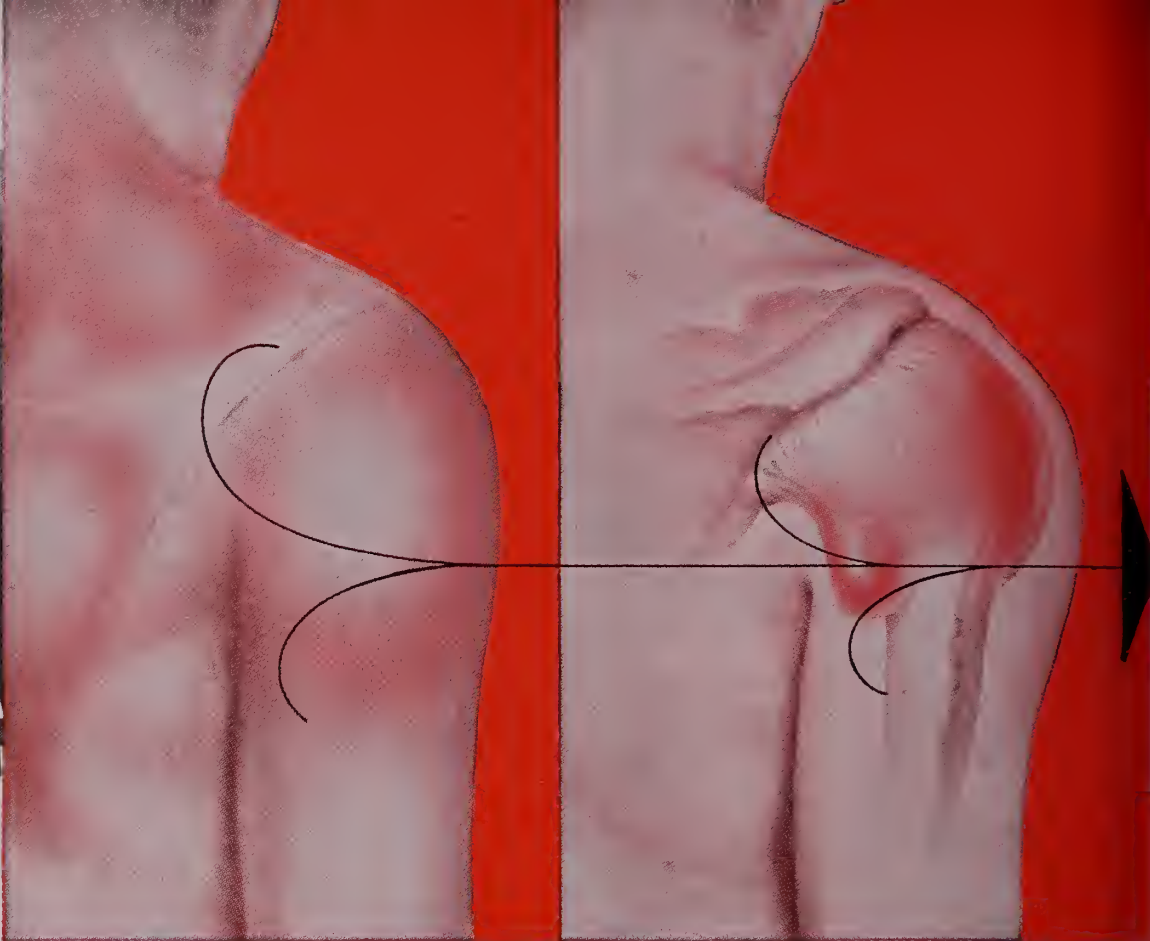
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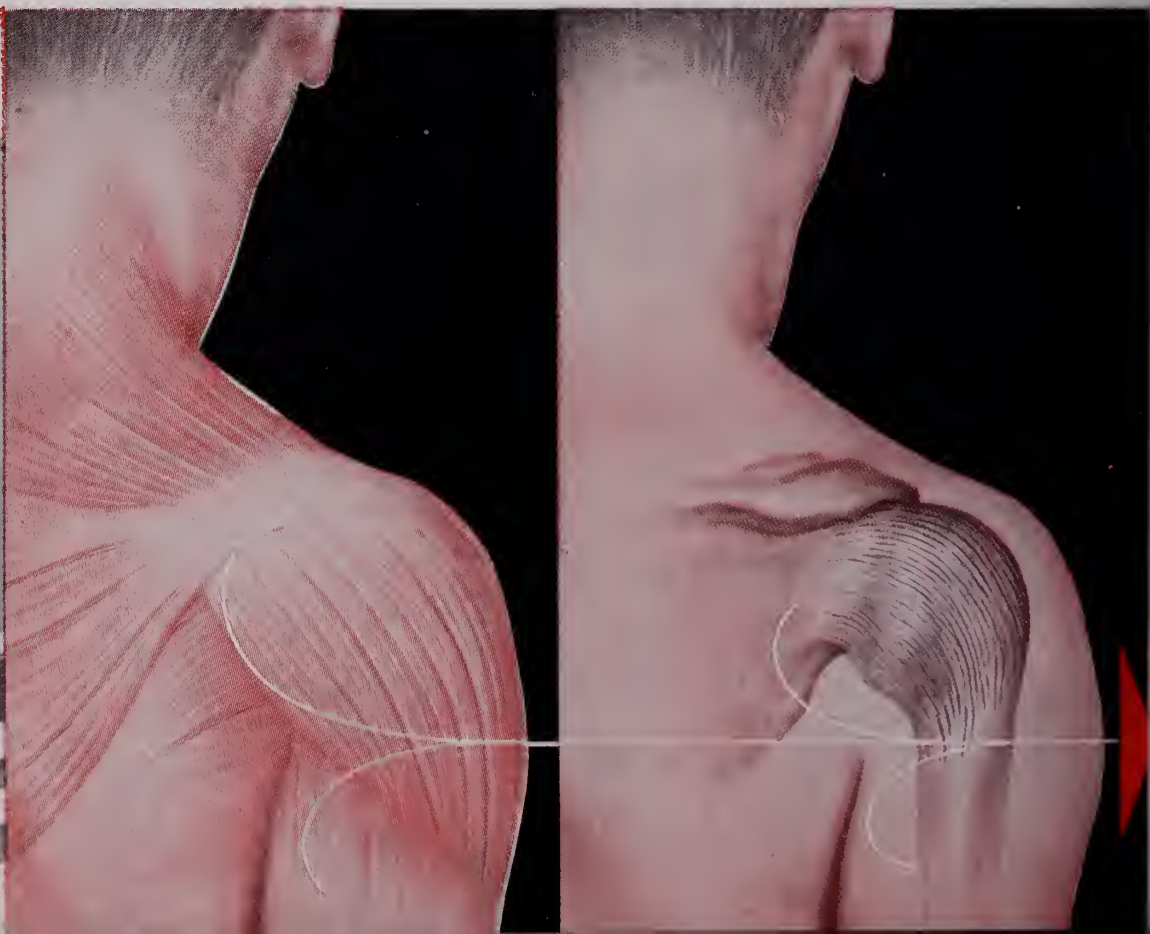


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(1) Hagedorn, A. B.: Proc. Staff Meet. Mayo Clin. 32:705 (Dec. 11) 1957.

(2) Best, W. R.; Louis, J., and Limarzi, L. R.: M. Clin. North America (Jan.) 1958, p. 3.

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Riseman, J. E. F., Altman, G. E., and Koretsky, S.:
Nitroglycerin and Other Nitrites in the Treatment of
Angina Pectoris, *Circulation* (Jan.) 1958.

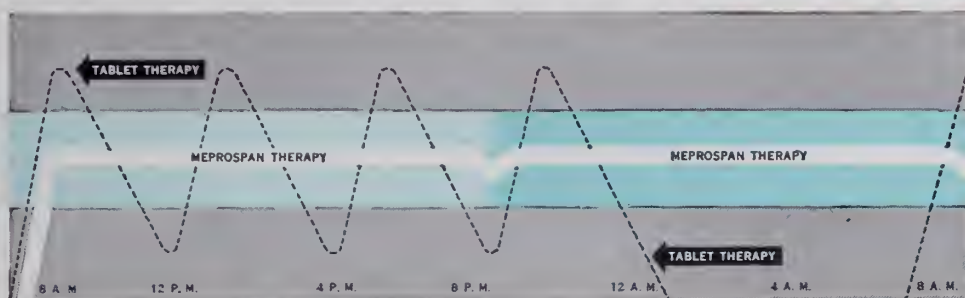
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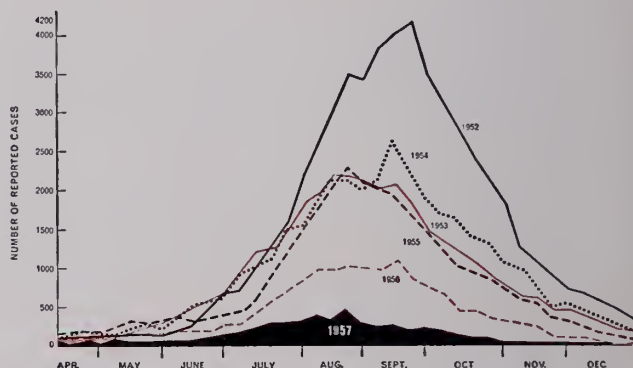
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1. J. A. M. A., 165:21 (November 23), 1957.

2. Department of Health, Education, and Welfare: News Release, October 10, 1957.



BLOW-OUT PATCH REPAIR OF HERNIA WITH STEEL CLOTH*

DANIEL J. PRESTON, M.D.** and C. F. RICHARDS, M.D.***

The purpose of this report is to present personal experience with various implanted materials for the repair of hernia and to suggest methods for improving the results of hernia repair by the use of stainless steel cloth implants.

About ten per cent of individuals who are otherwise normal show a congenital weakness of the abdominal wall in the inguinal regions. Flat feet, hemorrhoids, varicose veins, herniated intervertebral disc, and inguinal hernia are peculiar to humans because they habitually walk on their hind legs. These conditions are rare in four-footed animals. Compensatory anatomic evolutionary changes in the human inguinal region have not kept pace with man's habits of locomotion.

Though a careless surgeon will have poor results by any method and a good surgeon may have good results with poor methods, optimum success in the repair of hernia is obtained by observance of certain sound surgical principles. These include aseptic technic, avoidance of placing materials in the wound which will cause tissue irritation or excessive fibrous tissue formation, hemostasis, avoidance of injury to nerves and blood vessels, gentleness in the handling of tissues, and maintenance of optimum local blood supply.

Over-enthusiastic dissection may deprive the white fascia layer of valuable blood

supply if all areolar and fatty tissue are removed from it. Excessive wound tension interferes with local blood supply and hinders good healing. Recurrence of the hernia may result from impaired healing when post-operative circulation at the incision is deficient rather than from failure of the suturing.

Relaxing incisions or the creation of fascial flaps from the rectus sheath for repair of inguinal hernia is not advised. Such methods may result in enlargement of the area of weakness with recurrence of the hernia when structures from an adjacent strong area are expended to strengthen the weak area.

Removal of fascia lata strips through separate incisions in the thigh for use in the repair of hernias is not recommended. In 1,485 repairs with autogenous fascia sutures, recurrence was found in 27.7% (Burdick) and ran even higher when homologous fascia or ox fascia was used.¹ Transplanted fascia is not a living graft. It is avascular non-viable tissue which becomes replaced by fibrous tissue in the wound. Unsightly or disabling muscle hernia may occur in the thigh at the donor site.²

Scar tissue or fibrous tissue resulting from inflammation is not so strong as normal musculo-fascial tissue. An excessive amount of it at the site of hernia repair is undesirable and may lead to recurrence of the hernia. The injection of irritating solutions at the hernia ring produces much local inflammation and scar tissue but does not produce a lasting cure of the hernia. Auto-

* Presented by Dr. Richards at the Annual Session of the Medical Society of Delaware, October 26, 1957.

** Director of Surgery, Delaware Hospital, Wilmington, Delaware.

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genous split skin graft or cutis graft is objectionable for hernia repair because of frequent post-operative infection and the formation of excessive fibrous tissue in the wound.²

Successful repair of direct and indirect inguinal hernias in patients whose musculature is of poor quality requires something more than the material supplied by the patient. The anatomy of the region bears out this fact when one is confronted with attenuated transversalis fibers and weak, flabby internal oblique muscles. Most attempts to build a firm wall with such weak fibers is doomed to failure. It was with this thought in mind that investigations were made to discover materials that would give this area the needed strength yet be workable and non-irritating to the tissues.

Direct hernias repaired by experienced surgeons using standard procedures show a 25 per cent recurrence rate in five years (Stanton). The recurrence rate for indirect hernias is reported to be 10 per cent to 12 per cent (Mandl)¹. These surgical failures represent a significant economic factor to the patient concerned because of disability periods involved and the cost of present day hospital treatment. Since 1948 we have employed modified surgical methods of repair in selected cases using implanted materials in the abdominal wall for the purpose of reducing the incidence of recurrence. The guiding principles employed in modifying standard procedures to improve surgical results have been:

- a. Elimination of excessive wound tension.
- b. Use of implant materials and sutures of maximum strength and minimal irritation in the tissues.
- c. Conservation of blood supply at the site of hernia repair and avoidance of injury to nerves.
- d. Establishment of secure closure by reliable mechanical methods.
- e. Gentleness in handling the tissue.

Inorganic substances produce less irritation in tissues than organic substances. For this reason plastic materials and other organic compounds have been avoided. Nylon

net is unsatisfactory as an implant material because it causes local irritation, infection, and chronic wound sinus formation.³ Silk employed for the lattice repair of hernia is not acceptable.⁴ These organic materials are known to be unsuitable for implantation in tissues.

Three materials from a list of readily available inorganic substances were selected for clinical trial. During the past nine years tantalum mesh, glass cloth, and stainless steel cloth have been used for implant repair of abdominal wall defects in selected cases.

Tantalum mesh constructed from monometal wire is well accepted by tissues because it is inert and non-irritating. However, this material has the disadvantages of excessive stiffness, relative weakness, and a tendency to fragment in the tissues after operation.

Glass cloth is a strong, soft, pliable fabric which has excellent handling qualities but has the undesirable effect of producing irritation when implanted in the tissues. A sizing of mineral oil and starch, necessary to the spinning and weaving of glass fibers, is believed to cause objectionable wound irritation. Removal of the starch and mineral oil from the glass cloth caused the fabric to become weak, easily fragmented, and brittle in quality, making it unsuitable for use as an implant material. After a trial of glass cloth blow-out patch for repair of 176 hernias by one of us, further use of this material was abandoned because of the disappointing incidence of wound irritation produced by it.⁵ Even though antibiotics were given prophylactically, infection was frequent.

Annealed 18-8 stainless steel cloth has most of the desirable features of glass cloth and tantalum mesh without the objectionable qualities. Stainless steel mesh does not require a sizing for its fabrication and is accepted well by the tissues as an implant because it is inert and non-irritating. This fact is evident since antibiotics have not been used postoperatively by one of us (Richards) and infection has been no problem. Steel cloth is superior to tantalum mesh for repair of hernias because it has

greater strength, greater pliability and softness, less tendency to work-harden, does not fragment in the tissues, can be obtained in a wider variety of mesh and wire sizes, and is cheaper. Therefore, we consider steel cloth to be the best available implant material for closure of hernia defects.

Large incisional or ventral hernias which have such widely separated musculo-fascial edges that closure of the defect cannot be accomplished by suturing in the usual manner, are best managed with a steel cloth

blow-out patch. Successful reconstruction following excision of a part of the abdominal wall for treatment of malignant disease and repair of large diaphragmatic and pelvic floor defects are facilitated by the use of a steel cloth prosthetic implant, avoiding undesirable wound tension. Mechanical advantage in this type of repair is obtained by fashioning an implant larger than the size of the hernia ring and anchoring it with steel sutures beneath the edges of the musculo-fascial opening as shown in Figure 1. On-lay implant repair is not reliable and

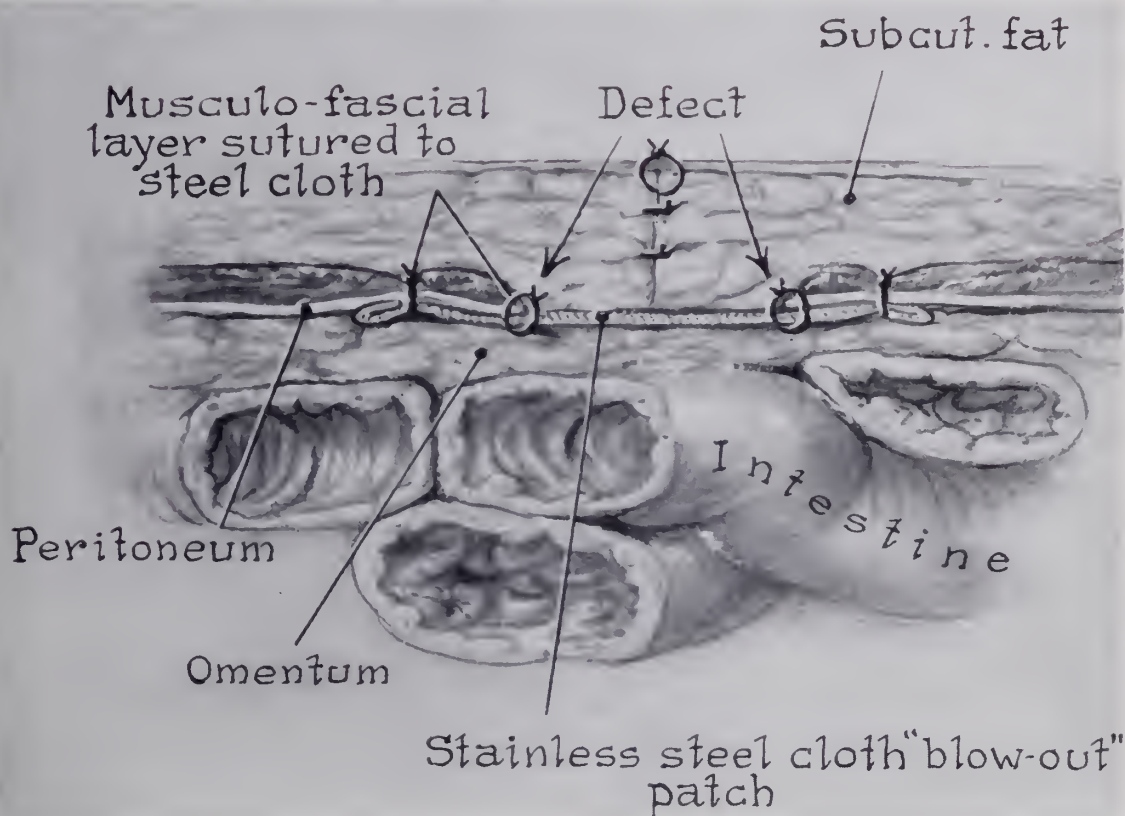


FIGURE 1

Cross section diagram indicates a method for anchoring the blow-out patch beneath the edges of the musculo-fascial ring. When widely separated musculo-fascial edges cannot be sutured together without excessive tension, the implant facilitates secure occlusion of the abdominal wall defect.

may be followed by recurrence of the hernia if the anchoring sutures are torn away by bulging pressure from beneath. Stainless steel suture material is prepared because other types are more irritating.

A method for repair of inguinal hernia with a steel cloth implant is shown in Figure 2 and Figure 3. The chief advantage of this blow-out patch repair over standard

hernia operations is the greater security in this type of closure which depends on firmly anchored steel cloth and not on weak or attenuated tissue layers sutured to each other. Distribution of intra-abdominal pressure over the extent of the implant is better retained than the same pressure applied to a narrow line of sutured tissue under tension.

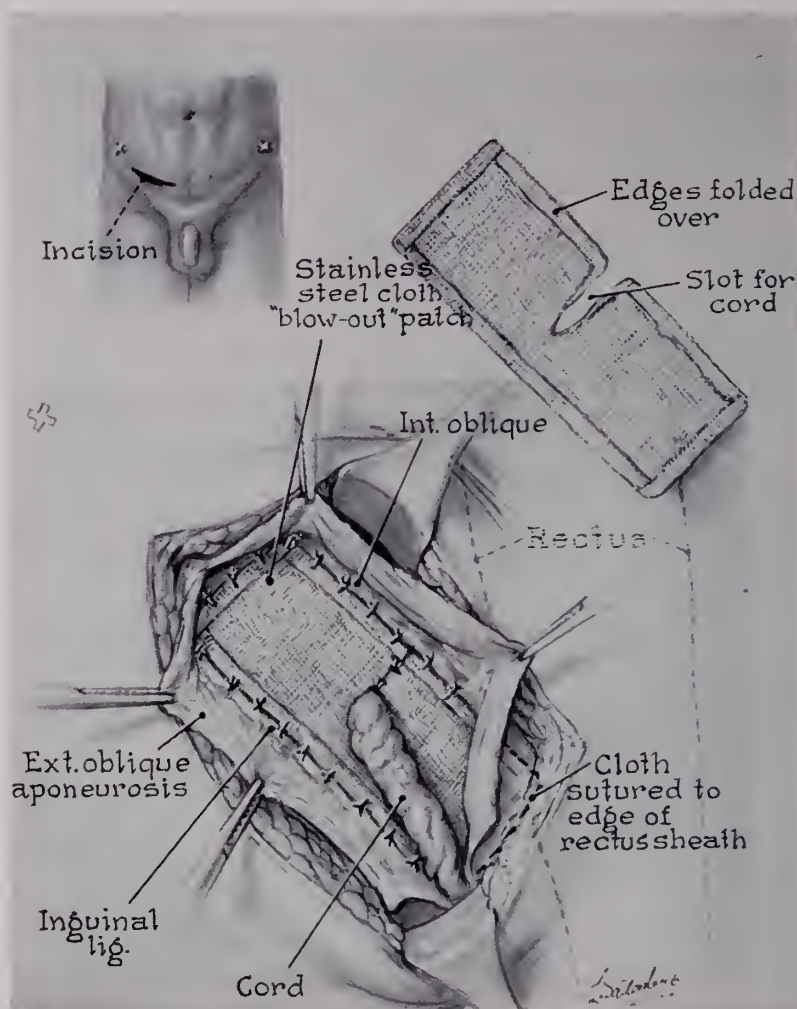


FIGURE 2

The implant is cut at the operating table to fit the area of abdominal wall weakness and slotted to accommodate the cord through its central portion. It is anchored medially to the edge of the rectus sheath and laterally to Cooper's ligament and the shelving edge of the inguinal ligament with interrupted stainless steel sutures.

Co-existing defects at the abdominal inguinal ring and at Hesselbach's triangle are reported in 11 per cent of inguinal hernias.² Blow-out patch of steel cloth is appropriate for the simultaneous repair of both hernias and can be used when either direct or indirect hernia occurs alone. For indirect hernias the transfixed and ligated neck of the sac is transplanted beneath the edge of the rectus sheath before stitching in the blow-out patch. For direct hernia, one of us (Richards) believed that a Cooper's ligament repair should be done first, and the implant of steel cloth stitched over it. Integrity of the repair, however, depends chiefly upon the securely anchored steel cloth implant. Without it a significant re-

duction of hernia recurrence rate would seem unlikely. Sufficient follow-up has not yet been made to determine whether blow-out patch with a standard repair technic is better than the simplified implant procedure shown in Figure 2 and Figure 3.

Table 1 lists hernias personally repaired by us since 1948 using steel cloth implants. Change from standard procedures is believed justified if clinical evidence shows improvement in results. These experiences with steel cloth implant repair indicate to us that results can be improved by this method. A reduction in the recurrence rate and reduction of the disability period has been noted when blow-out patch procedure

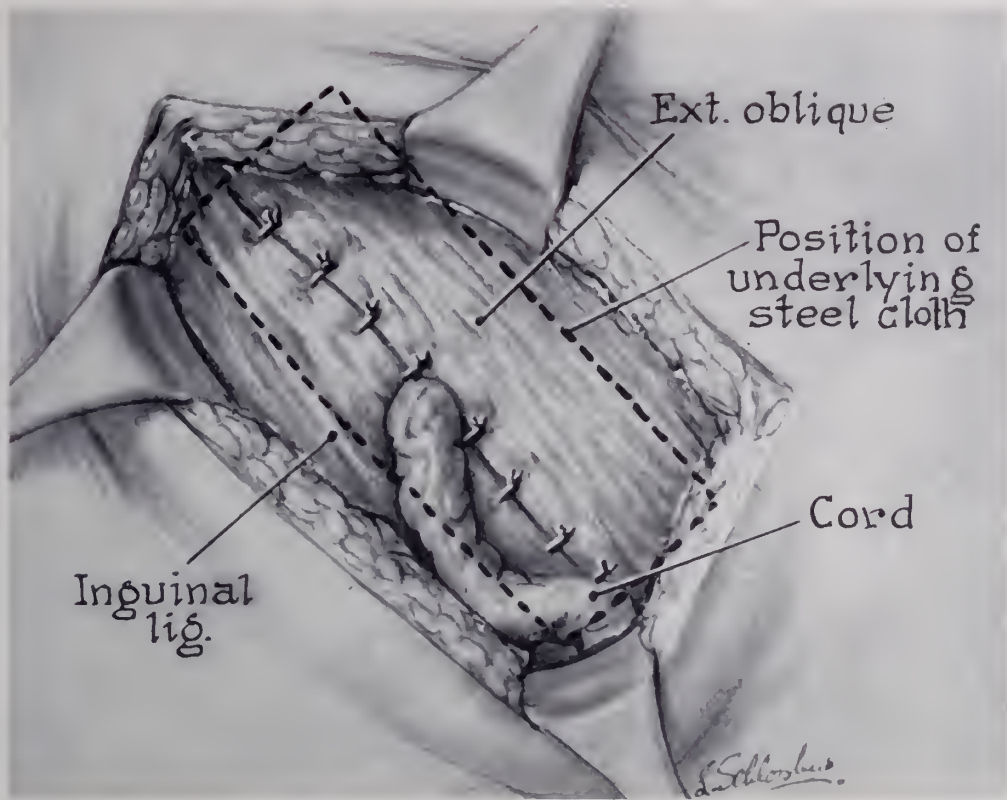


FIGURE 3

The edges of the external oblique aponeurosis are united with interrupted steel sutures over the implant and beneath the cord. Fibroblasts grow through the mesh of the implant making it an integral part of the abdominal wall.

TABLE 1
951 HERNIA REPAIRS WITH STEEL CLOTH
IN 749 PATIENTS
1948 - 1957

Indirect Inguinal.....	382	40.2%
Direct Inguinal	333	34.7%
Recurrent Inguinal	83	8.7%
Incisional	63	6.7%
Umbilical	24	
Femoral	20	
Recurrent Incisional	19	
Diaphragmatic	9	
Epigastric	7	
Pelvic	4	
Dehiscence	3	
Lumbar	2	
Recurrent Umbilical	1	
Littre	1	

Though steel cloth repair is not an ultimate operation, we believe it to be a desirable modification of standard procedure in selected cases.

One hundred twenty-nine patients who had steel cloth implant repair of hernia five or more years ago were sent a questionnaire and invited to have a free examination for the purpose of determining the results of this procedure. Four had died of unrelated causes in the post-operative interval. Fifty-seven did not respond. Thirty-seven returned the questionnaire and of this group, twenty-four came for examination. One recurrence was reported by questionnaire and one found by examination. This is 2.3 per cent known recurrence rate for 84 steel cloth implant repairs in sixty-one patients five or more years after operation. A second group of thirty-one patients examined four years after repair showed one recurrence. Thus, 115 repairs with 3 recurrences gives a 2.6 per cent recurrence rate. A follow-up by

was used. It is generally agreed that no perfect method for the surgical cure of hernia is available, but progress in medicine and surgery can come only through change.

questionnaire or for a period of less than five years is not considered reliable in determining the results of hernia operation. A more accurate estimate is had by examination of the patient five or more years after operation.

After operation for scrotal hernia a transient, edematous, local swelling is common. Scrotal swelling following repair of other types of inguinal hernia is uncommon. Post-operative thrombosis of vessels in the spermatic cord produces painful swelling and induration of the cord and testis followed by atrophy of the testis in some cases. This complication may be prevented by gentleness in dissection and avoidance of stretching the cord or constricting it by misplaced suture. Post-operative thrombosis of vessels in the cord is more likely to follow traumatic separation of the hernia sac from the cord, especially in patients with recurrent hernia, in some who have worn a truss, or when there is excessive fibrous adhesions between the sac and the cord from other causes.

Pain and tenderness persisting at the site of operation occasionally follows thorocotomy, lumbar incisions, and inguinal hernia repair and may be difficult to relieve.⁶ Neuralgic pain and tenderness can be relieved in some instances by local infiltration nerve block with 1 per cent solution of procaine hydrochloride. Disabling pain which cannot be relieved by conservative measures may require ilio-inguinal neurolysis or neurectomy but these operations are not always successful. Post-operative neuralgia can be prevented by gentle handling of tissues during operation, avoidance of tearing, stretching, or cutting nerves during operation, and avoidance of including nerves in sutures or ligatures. When steel sutures are used, the ends should be cut flush with the knot so that there are no sharp projections. When nerves have been injured, the steel sutures or steel cloth should not be implicated mistakenly as the cause of symptoms. Steel cloth blow-out patches have not been found to cause post-operative pain when properly employed.

Judgment of the surgeon in selecting the appropriate method and technic for obtain-

ing the best results is an important ingredient of all successful hernia operations. Each hernia is an individual and separate problem which should not be subjected to a routine treatment. Steel cloth implant repair with steel sutures is an appropriate procedure for many hernias but is especially recommended for those which cannot be closed by suturing the musculo-fascial edges without causing excessive wound tension. During the healing process fibroblasts grow through the steel mesh and make it an integral part of the abdominal wall. This is a rational procedure which favors prompt healing and a high rate of cure because it affords a secure closure without excessive wound tension. Tissue reaction is minimal and optimum local blood supply is maintained. Steel cloth implants and steel sutures are not fool-proof and do not guarantee perfect results, but when they are used with reasonable skill and judgment it is believed that better results can be obtained with them in appropriate cases.

SUMMARY

A preliminary report is made of experience in the repair of 951 hernias with steel cloth blow-out patch repairs in 749 patients. This method is recommended when musculo-fascial layers cannot be closed by sutures without producing excessive wound tension. It is a rational procedure for preventing recurrence of hernia.

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BEGINNING OF DISCUSSION

DR. RICHARDS: I will now turn the discussion over to Dr. Preston, who will give you the technic of placing the steel cloth implants.

DR. DANIEL J. PRESTON: Treatment surgically of a condition presumably includes

first the knowledge of the causes of the trouble. The treatment is then directed towards correction of that cause. I don't know what the cause of hernia is, so we have devised a method of treatment against curing a defect of which we may not know the entire ideology.

However, it is apparent that about 10 per cent of the people are born with a weakness in their inguinal regions. Not all of these develop hernias apparently, but it does seem true that the human being is subject to flat feet, varicose veins, hemorrhoids, slipped discs, and inguinal hernias, and presumably that is the result of walking around on his hind legs.

In looking over reports to find out what the incidence of recurrence of hernia is, it has been difficult to arrive at anything like accurate figures because various authors report everything from zero to 40 per cent of cases recurring. However, reliable sources seem to indicate that five-year results in direct hernias, repaired by standard methods, produce about a 25 per cent recurrence. The recurrence rate for indirect hernia is much less, being around 10 to 12 per cent.

This represents an appreciable economic factor. A man who has to work for a living sometimes is rejected for employment if he has a hernia. If he has a recurrence of the hernia after it has once been repaired, the disability has been compounded, the cost of hospitalization is considerable, the time lost from work, loss of income—all of these things count heavily from an economic viewpoint. So that it behooves us if we can, in doing our repair work, to prevent recurrences as much as possible.

A careless surgeon who does not pay close attention to his technic will get poor results from almost any method he uses. Conversely, a good surgeon may obtain good results even when he uses poor methods. But I think you will agree that optimum results can be hoped for if sound surgical principles are employed in doing repair work.

There are several fundamental principles which we have tried to follow in doing this blow-out patch type of hernia operation: First, the avoidance of excessive scar tissue

formation in the wound. Scar tissue, contrary to what once was thought, is not strong tissue. It is always weaker than normal musculo-fascial tissue, and when there is an excessive amount of it in the wound it does contribute to recurrence. Therefore we avoid those substances which produce irritation and scarring, as Dr. Richards has already outlined.

The non-organic materials cause minimal reaction and are therefore preferred for sutures, ligatures and implant materials. I do not believe that we have a best method or an optimum method for repairing a hernia as yet. I am sure we will find something better than the steel cloth blow-out patch. As a matter of fact, I am now interested in some animal experiments which we hope to undertake soon with the silicon products. This is a new non-organic substance which has many of the qualities of a plastic, yet is not an organic substance and is well accepted by the tissues. This may produce a substance which will find many uses in surgery.

Progress comes slow in surgery. It is not wise to jump into new things ill-advisedly. But I think when sufficient evidence accumulates to indicate that we have an improved method of treatment, it is desirable to accept it if it proves to be on a sound basis.

Excessive tension in the wound causes diminished blood supply to the wound and therefore should be avoided. The chief advantages of our implant, such as the steel cloth, is that we can occlude the defect in the abdominal wall without increasing the wound tension.

In a large hernia it is sometimes difficult to co-lap the edges of the musculo-fascial ring without producing undesirable tension. It is in those cases especially I think that the steel cloth is helpful. Gentle handling of the tissues and avoidance of crushing nerves or the avoidance of damaging local blood vessels goes without saying. Hemostasis is important. Each contributes to a successful operation. But if we avoid irritating substances which are put in the wound we are also again contributing to a better chance for a successful repair job.

We have found the least reaction from these soft stainless steel sutures and ligatures.

When using a steel cloth implant for the repair of a large ventral hernia the musculo-fascial edges are separated; they are not brought together. We occlude the defect by placing a blow-out patch beneath the musculo-fascial layer, which is anchored with steel sutures in such a manner that it occludes the opening without increasing the tension of the abdominal incision. For this reason we are able to anticipate a good blood supply, early healing and a sound closure of the wound.

The on-lay patch, a patch placed over the top of a musculo-fascial defect, is not advisable. The intra-abdominal tension or pressure from within the abdomen may burst the stitches and blow the implant to one side and a recurrence can take place. For this reason we recommend that the implant be placed beneath the edges of the musculo-fascial defect.

A piece of steel cloth is cut at the operating table, slotted to accommodate the cord to its central portion, and it is stitched in, using the steel sutures again; the most important part being a secure anchorage of the implant behind the pubic bone, down the pubic ramus to the shelving edge of the inguinal ligament, and to the edge of the rectal sheath.

The blow-out patch for inguinal hernia repair differs from standard methods chiefly in this respect, that the secure closure does not depend upon the suturing of weak attenuated musculo-fascial tissues but rather upon the steel cloth implant itself, which is from the anchor to the inguinal ligament and to the tissues behind the pubic bone.

The mechanism in this is that we absorb the interabdominal pressure against a wider surface. The blow-out patch distributes this force more diffusely, and therefore the pressure is not exerted against a small area of a single row of stitches as might occur in some of the standard procedures where weak tissue under tension is sewed together. We feel that this technic for repair of abdominal wall defect gives a more secure closure and is less apt to result in recurrence of a hernia.

To summarize, I want to mention two post-operative recurrences. Rough handling of the cord sometimes results in thrombosis of the vessels of the cord. This causes pain, tenderness, swelling of the scrotum and testis. I think some people develop atrophy of the testis following thrombosis of these vessels. It is best prevented by very gentle handling when you dissect the sac from the cord. Heavy-handed methods, injury to these vessels, may result in thrombosis.

The other complication, which is occasional, is persistent pain. This occurs, as noted by White, in thoracotomy wounds, in lumbar incisions, and occasionally in hernia repair sites. His findings in this are that during the operation the nerves are stretched or torn, a neuroma may be produced, which results in a neuralgia or neuralgic pain that in some cases is disabling, is persistent and is difficult to relieve. We have not found implant of steel cloth or steel sutures to be the cause of such pain. I have seen some people operated on for removal of sutures without relief of the symptoms, because it apparently was due to other causes, possibly to stretching or injury to the nerves during operation. This is another reason why gentle handling of the tissues, concentration of blood supply, and gentleness to prevent the thrombosis of the vessels of the cord are important during the technical part of the operation.

CHAIRMAN MURRAY: Dr. Laird will now discuss this paper.

DR. LAIRD: I assume that I have been asked to discuss this paper because in 1953 I published an article on the Gallie living-fascial repair of difficult hernias. A priori, I wish to make it clear that I am not unequivocally opposed to the use of artificial prostheses in the cure of hernias, in selected cases.

As stated, in 1953 I reviewed the literature and compared the results obtained with both fascia lata and with implants, principally tantalum and stainless steel.

The following points were brought out by me:

First, on paper, the failure percentages were essentially the same, 2.8 per cent mesh to 3.1 per cent fascia. The follow-up periods

were longer in the cases studied with the fascia.

Second, the use of the living fascia is more often reserved for the more severe types of hernias, usually those once or twice recurrent as opposed to primary repairs in patients with ordinary direct hernias or poor fascial structures.

Third, the appeal for the use of implants lies in the simplicity of the procedure and the time saved in its application as compared with fascial strips.

Perhaps the very fact that the use of fascial strips is more arduous and time-consuming is a valuable check or deterrent in the indiscriminate use of prostheses of this kind.

Constantly hearing surgeons discuss the number of cases of failure by implants which they encountered, I made a surgeon to surgeon survey throughout Wilmington of the actual number of cases encountered. Any doubts were disqualified, including my own. I questioned 23 surgeons. The number of recurrences that they knew of was 19. The number of screens that had been removed because of pain or other things, draining sinuses or other disability was 11, making a percentage of 30 out of 951.

I am using Dr. Preston's and Dr. Richards' figures because I am sure with rough statistics of this kind they will make it essentially correct—which is a 3.2 per cent. This compares essentially with the other figures.

All of the 23 surgeons questioned used implants infrequently. None had experience with more than half a dozen or so and did not use them routinely in direct hernias. Therefore, the recurrence rate of surgeons using fascia lata in recurrent and extremely difficult hernias of all varieties is essentially the same as those using implants in more or less routine varieties—approximately three per cent. These figures may be accepted as practical.

After reviewing the literature and listening to the previous paper with the unusually large number of cases in which implants are used, it is obvious to me that: First, im-

plants are being used in a great many cases in which they are not necessary and in which cure could easily be effected by the use of the normal anatomical structures present at operation.

Last year, W. L. Estes of Bethlehem, who is a leading surgeon with particular reference to hernias, reported on 113 cases, all of which were five-year follow-ups. The recurrence rate on direct hernias only was 1.7 per cent, using only the patient's structures. It is hard to compare figures like that with a 25 per cent recurrence rate on direct hernias from others.

The second point is, with team cooperation and the help of Masson strippers, which causes little trouble to the patient, the use of Gallie sutures adds little time to the operation and no disability to the patient.

Third, I believe there is a place for steel mesh implants, where the patient's own structures are lost, absent or so deficient as to be definitely ineffectual.

I would like to quote something which summarizes and expresses much better what I feel about the use of stainless steel mesh. It was written by Roland Maier in a recent editorial in the *American Journal of Surgery*:

"There is general agreement that the use of the patient's own tissues in closing the hernial defect offers the best hope of effecting a permanent cure of the hernia." . . .

"There is no doubt in my mind that these various plants have been used too indiscriminately in recent years." . . .

"I can recall very few cases in which the patient's own tissues could not be used to close the defect in the abdominal wall." . . .

"There is no excuse for the use of these implants in the repair of inguinal hernias." . . .

"In the past few years I have had occasion to reoperate on many patients who were unfortunate enough to have some type of inert substance used in the repair of their hernias. Their recurrent hernias with multiple draining sinuses have presented real problems. Sound surgical judgment is still

the prime prerequisite of the good surgeon. It is my conviction that its absence has been clearly demonstrated in most of the patients who have come under my care following the use of these various implants, and their indiscriminate use in the repair of hernias should be condemned."

I still adhere to the teachings of Gallie, Le Mesurier, Masson and Halstead: that a hernial repair dependent on fibrous or scar tissue can be expected to fail because of their tendencies to stretch as compared with the permanency of fascial and tendinous structures.

Sewell and Koth, in the *Surgical Forum of the 41st Clinical Congress of the American College of Surgeons* in 1955 stated that: "Fascia is the strongest tissue readily available to the surgeon." They went on to say about the use of living fascia, "The primary deterrents in many cases in which it is considered by the surgeon but not used are the operative time, trauma and disfigurement of the procedure for the procurement of the tissue."

I still maintain that the above deterrents are minimal in the hands of a surgeon who uses the method enough to become proficient in it, and who will take advantage of a colleague to help him.

Drs. Richards and Preston state that "Scar tissue or fibrous tissue resulting from inflammation is not as strong as normal musculo-fascial tissue. Excessive amounts of it at the site of hernia repair is undesirable and may lead to recurrence of the hernia." Yet we all know that "usage" or fragmentation occurs in tantalum and stainless steel implants and that the success of a repair with these materials depends upon the fibrous or scar tissue built through and around them—the very scar tissue which the above doctors state is not as strong as normal musculo-fascial tissue.

As for disabling or unsightly muscle hernias occurring at the donor site, I have never had a single patient complain about the donor site nor have I had a single recurrence. My series is very small, and in my 19 years in Wilmington I have done only 24 Gallie repairs. To date I know of no recurrence.

I want to say that I enjoyed the paper of Dr. Preston and Dr. Richards. It is amazing that they have amassed a series like this which usually would be accumulated only in a place like one of the tremendous teaching centers. It was well presented and I appreciate being allowed to discuss it.

CHAIRMAN MURRAY: Dr. James Beebe, would you like to come forward and comment?

DR. JAMES BEEBE, JR.: Gentlemen, I would like to congratulate Dr. Richards and Dr. Preston on their very excellent presentation of this paper.

I should like to say that in my hernia repairs I reserve the use of artificial implants for the difficult or recurrent type cases. It appears from the large series of cases they have presented that they must use implants in most cases.

When I first began the practice of surgery, I thought that a hernia could be repaired adequately if it were repaired carefully. However, when I began to see the recurrences, I realized the need for some artificial implants. I have used the stainless steel mesh for large defects in the abdomen. In the inguinal hernia repairs, I have used vitallium plates with good results. One case had severe pain that persisted for about two months and was relieved when the plate was removed.

I would like to ask a question of Dr. Richards. I know that he used to use plates, and I wondered why he discontinued their use.

Again I thank them for the excellent presentation.

CHAIRMAN MURRAY: Dr. Richards, will you answer the question?

DR. RICHARDS: I never did use that.

CHAIRMAN MURRAY: Well, I see a roomful of surgical friends here whom I would like to comment on this paper, and I would like very much to hear them. However, we are running overtime, so we will have to forego that pleasure.

Thank you very much. It was excellently done.

PROBLEMS IN INFERTILITY*

ISADORE SLOVIN, M.D.**

Treatment of the infertile couple continues to demand attention and study from the medical profession. Therefore it is satisfying to note new advances which improve the prognosis in such cases.

CASE 1. USE OF POLYETHYLENE TUBING IN TUBAL SURGERY

This case illustrates the most modern approach to the treatment of infertility due to tubal occlusion. Polyethylene tubing was used to maintain patency of the Fallopian Tubes.

The patient, age 29, came to my office on January 8, 1955. She complained that she had been infertile for five years. Menstrual periods were regular and normal, occurring at intervals of 28 days. She was gravida I, para I, the only child being 11 years old. The last menstrual period had been January 1, 1955 to January 5, 1955. The medical history revealed that she had been studied previously elsewhere and had had several tubal insufflations and a hysterosalpingogram, all of which showed tubal occlusion. She also had had a D&C.

Her family history was irrelevant and non contributory.

Upon examination at her initial visit, she was physically a well-nourished, normally developed female. The thyroid gland was normal to palpation, breasts were negative and heart and lungs showed no abnormalities. The abdomen had no masses, tenderness, rigidity or scarring.

Pelvic examination showed a parous introitus with no abnormal relaxation. The vaginal mucous membrane was normal in appearance, the cervix was parous in type and mucous membrane was intact. The

fundus was anterior in position, freely movable and normal in size. There was bilateral adnexal induration, but no definite masses were palpable.

A digital rectal examination was negative.

The following examinations were made:

1. Examination of the husband's semen showed sperm to be present in normal quantity and quality.
2. Tubal insufflations with carbon dioxide (Rubin Test) indicated tubal occlusion.
3. On March 3, 1955 a D&C, culdoscopy, and injection of indigo carmine thru a cervical canula confirmed tubal occlusion as well as normal ovulation.
4. In June 1955 a hysterosalpingogram indicated occlusion bilaterally at the fimbriated ends.

The patient was treated with antibiotics and warm douches.

On December 19, 1955, a laparotomy was done. A bilateral tubal occlusion of the fimbriated ends due to chronic salpingitis was encountered. This was treated by salpingoplasty on the cornual ends of the tubes. The endosalpinx was threaded with #32 polyethylene tubing which was extended through the distal portion of the tube and brought into the vagina through a small incision in the posterior cul-de-sac.

The postoperative course was uneventful.

One month later, the polyethylene tubing was removed by way of the vagina.

After 2 months the couple resumed normal sexual relations. Conception occurred in May 1956. Unfortunately, the membranes ruptured at 20 weeks gestation and a non viable baby was delivered on November 20, 1956.

* Presented at Staff Meeting, November 29, 1956.

** Member Department of Obstetrics and Gynecology, Wilmington General Hospital, Wilmington, Delaware.

CONCLUSION

1. Infertility due to tubal occlusion carries a better prognosis than in the past.
2. The case demonstrates the advances made in surgery of the Fallopian Tubes, using polyethylene tubing to restore patency.

CASE II. USE OF CORTICOIDS IN FOLLICULAR SYNDROME

The patient came to my office on January 30, 1956. Her history showed that she had been married for three years and had been infertile for the same length of time. Menstrual periods were irregular with long periods of amenorrhea lasting from 3 to 6 months. She was gravida O.

Past medical history showed that she had had a D&C in May, 1953 at which time a pessary was inserted. Neither procedure helped.

A Rubin Test was done in Pottstown, Pennsylvania in 1953 and showed the tube to be patent. Endometrial biopsy in 1953 showed no sign of ovulation.

A sperm examination in 1954 was normal.

In May, 1956 the 17 ketosteroids urinary excretion was 9.3 mg./24 hours. The basal temperature chart was always monophasic.

Final examination showed that the blood pressure was 130/80. The patient was mildly obese and showed slight hirsutism. Breasts were normally developed and the abdomen showed moderate male escutcheon. Pelvic examination showed mucous discharge. The cervix and fundus were small with bilateral ovarian enlargement. Rectal examination was negative and the basal temperature chart was monophasic and erratic. Four years previous the BMR was +10 and blood and sugar was normal.

Treatment consisted of thyroid extract given in small dosages. Withdrawal bleeding was induced using estrogen and progesterone.

Starting June 12, 1956 cortisone was prescribed in doses of 25 mg. per day and she was put on a low sodium and fluid regime. This was changed to meticorten 5 mg. per day on July 15, 1956.

In August 1956, the patient complained of tiredness. She had had no period since February 15, 1956 except one episode of induced bleeding in May 1956. The fundus showed 2+ enlargement and on August 25 she had a positive Friedman Test. Meticorten was discontinued and the patient was put on stilbestrol 5 mg./tid. In September 1956, the fundus was the size of an 8-9 weeks gestation. The estimated date of confinement was April 1957.

On April 27, 1957 the patient delivered a male infant. She had an uneventful pregnancy and normal delivery.

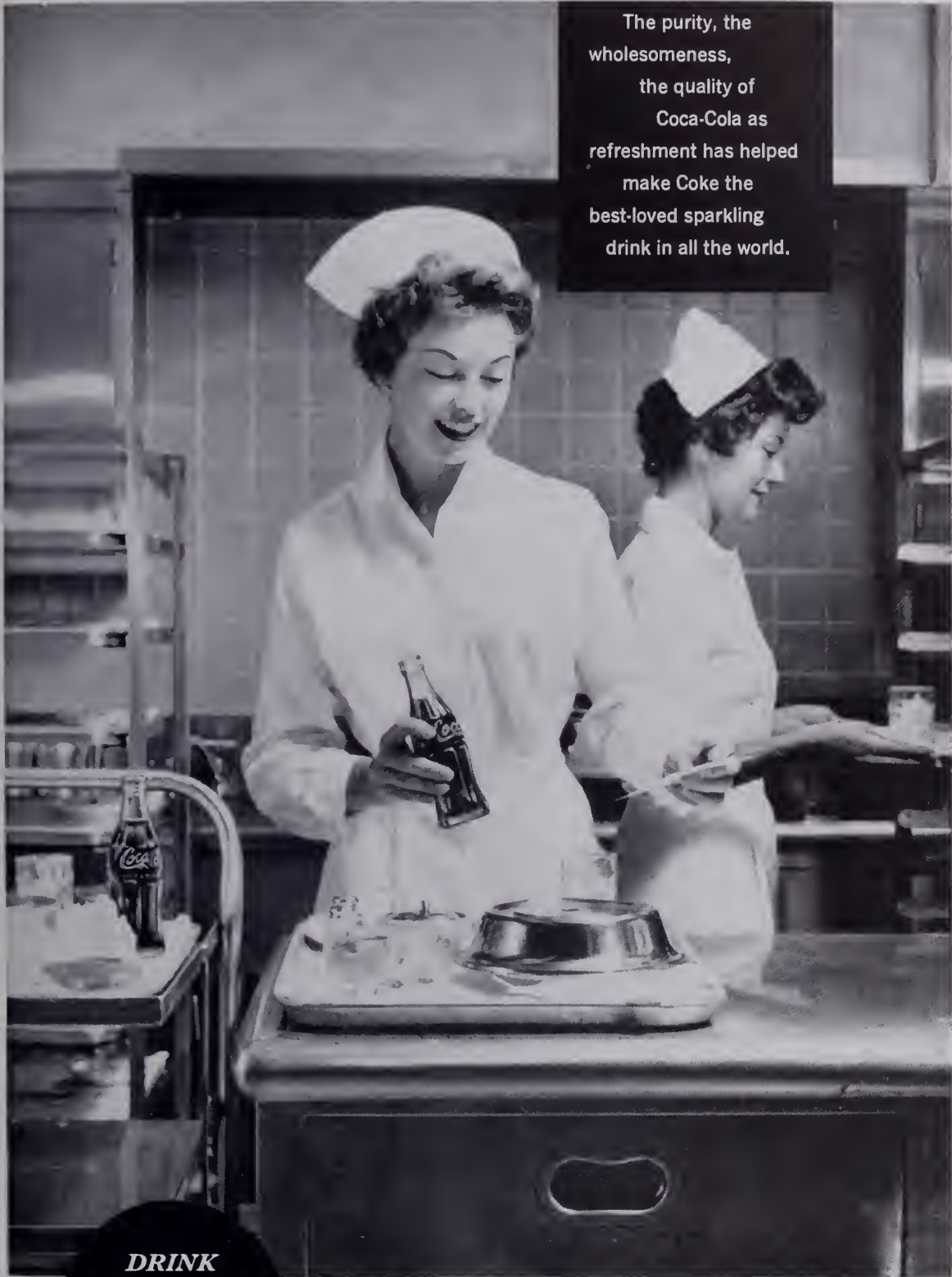
CASE III: USE OF CORTICOIDS AND WEDGE RESECTION OF OVARIES IN FOLLICULAR SYNDROME

The patient came to my office in February 1953. Her complaint at that time was that she had been married 5½ years, and had been infertile for 3 years. She had had irregular periods which lasted about 7 days and lapsed from 3 months to 1 year. She was gravida O and para O. Her past history was negative.

A physical examination showed the patient to be nervous. She had no hirsutism, was of normal weight and height but with mild facial erythema and acne. The breasts showed normal development and examination of the abdomen was negative. A pelvic examination revealed mild vaginitis and moderate nonspecific discharge. The cervix was negative; the fundus normal in size, shape, and position. The ovaries were enlarged, bilateral and cystic. Rectal examination was negative. A Rubin Test revealed tubal patency. The basal temperature chart was monophasic and erratic. A count of the husband's sperm was normal. In March 1953, a premenstrual endometrial biopsy showed follicular phase of endometrium. A BMR in May 1953 was +24, but it was not done under basal conditions. Urinary excretion of 17 ketosteroids was 14.5 in 24 hours in June 1953.

The history of treatment before seeing us indicated as follows:

1. Menses improved with thyroid and Vitamin B.



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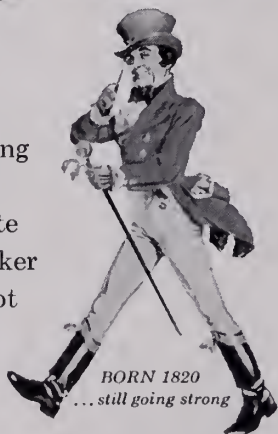


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2. Menses improved with "shots" (type undetermined).
3. Menses improved with anxiety and mental shock.
4. Menses improved by stopping her work.

We started therapy with thyroid extract gr 1/4 tid, and after the ketosteroid determination in June 1953, added cortone 25 mg. per day.

On August 25, 1953 she came again to my office. She had missed two periods and was seized with sudden severe lower abdominal pain while vacationing at the seashore. She was hospitalized there for one week prior to August 25.

Examination showed a bulging cul-de-sac which was tapped and produced blood. A laparotomy was done and about 300 cc. of organized liquid blood and a hematosalpinx resembling a tubal pregnancy was encountered. She had bilateral polycystic ovaries. A bilateral wedge resection and unilateral salpingectomy were done. She had an uneventful recovery.

Menstrual cycles became regular and ovulatory. She was asked to abstain from intercourse and not attempt pregnancy for three months. On May 4, 1954 she conceived. After a normal prenatal course she delivered a healthy infant at term.

CONCLUSION

1. The diagnosis of Follicular Syndrome, such as is found in the Stein-Leventhal Syndrome should be made only after careful study to establish the presence of anovulatory bleeding, infertility, and the absence of adreno-genital syndromes.
2. Follicular syndrome, such as is present in the Stein-Leventhal Syndrome, frequently responds to conservative medical treatment with corticoids. Surgical treatment should be restricted to cases not responding to medical treatment or where pain is the predominant symptom.

ADDENDA

At the time of this publication, we can report that spontaneous pregnancies have occurred without further therapy in cases I and III.

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DISSEMINATED LUPUS ERYTHEMATOSUS: A TWENTY-ONE YEAR CASE HISTORY

DAVID J. REINHARDT III, M.D.* and PETER P. POTOCKI, M.D.**

The disease category of disseminated lupus erythematosus has been known for approximately fifty years. The many and varied clinical manifestations of this condition have been fully realized only since the description of the L. E. cell by Hargraves.¹ Since this discovery the diagnosis of D.L.E. has been made much more frequently in a variety of clinical syndromes which are not classic in themselves of the disease. However as more time elapses it becomes apparent that many of these patients eventually develop the full blown syndrome of acute disseminated lupus erythematosus (D.L.E.).

It is the purpose of this report to call attention to several atypical features of the disease and to emphasize the chronic, long term, variable course which D.L.E. frequently presents.

CASE REPORT

The patient was a 31 year old white female who was admitted to the Wilmington General Hospital with complaints of fever, facial swelling, eyelid edema, facial rash and joint pain.

The patient was known to have been in good health until the age of 10 years at which time she developed occasional grande mal convulsive seizures which were diagnosed as idiopathic epilepsy. These seizures were under continuous treatment from the time of the diagnosis until approximately one year prior to present admission. At age 17 the patient was told that she had a positive serology and treatment was instituted for a presumptive diagnosis of

syphilis although no history of contact was ever admitted by the patient.

The patient was married and had a normal pregnancy at age 24. Two years prior to the present admission the patient's menstrual periods began to produce large clots and the period increased from five to eight days.

One year prior to admission the patient was found to have a marked anemia and vague arthritic pains with some joint swelling. She was treated for the anemia with blood transfusions. Two months following the transfusions the patient began to note the presence of purpuric spots on the arms and legs. Six months prior to admission she was seen by a consulting hematologist who described her as being slightly pale and noted that petechiae and ecchymotic areas were present over the body, particularly about the buttocks and lower extremities. No lymph nodes were noted at that time. The liver was enlarged 2 finger breadths below the costal margin and the spleen was enlarged 1½ finger breadths below the costal margin. There was 1+ pitting edema of the legs.

Laboratory studies at that time revealed a hemoglobin of 8.4 grams per cent, a red blood cell count of 2,750,000, a white blood cell count of 4,800 and 5 per cent eosinophilia with an otherwise normal differential. The platelet count was 8,000 and the reticulocyte count was 18.8 per cent. The Coombs' test was negative. Testing for platelet antibodies yielded negative results. Examination of the bone marrow revealed generalized hyperplasia of all elements and no evidence of leukemic infiltration. The L.E. test was negative.

It was advised that the patient avoid further anti-convulsive therapy. ACTH

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** Assistant in the Departments of General Practice and Obstetrics and Gynecology, Wilmington General Hospital.

intravenously was recommended for a period of 10 days to be followed by prednisone, 5 mgm. three times daily for an indefinite period. Splenectomy was advised if these measures failed to control the condition. The patient continued taking the prednisone with good improvement in platelet count and anemia until two months prior to the present admission.

Shortly thereafter she developed a return of the arthralgia, occasional epileptic seizures, edema of the lower extremities, a marked edema of the periorbital areas and a productive cough. She was admitted to the Wilmington General Hospital.

Physical examination at the time of admission indicated a 31 year old white female of average development and nutrition with a butterfly type erythematous scaling rash over the malar regions of the face and the bridge of the nose. Temperature was 101° F. There was marked edema of the eyelids. The oral mucosa was pale. There were purpuric areas over the extremities and conjunctiva. No lymph nodes were noted. The heart showed no murmurs and the pulse rate was 100 per minute. The blood pressure was 120/70 mm of Hg. The lungs showed bilateral coarse rales; the abdomen was slightly distended; the liver and spleen were not palpable. The knees and elbows were slightly swollen and tender.

LABORATORY STUDIES

The hemoglobin was 11.6 grams, red cell count was 3,600,000 and white cell count was 7,200 with a normal differential. The platelet count was 240,000. The urine showed a 2+ albumin and an occasional red and white blood cell. The blood sugar was 93 mgm per cent, the blood urea nitrogen was 41 mgm per cent, total protein was 5.83 gms per cent with albumin of 2.33 gms per cent and globulin of 3.50 gms per cent, the A/G ration being 0.66. The creatinine was 1.5 mgm per cent. The Kahn and VDRL tests were weakly reactive. Three L.E. preparations were positive.

COURSE

The temperature ranged from 99° to

103°F. A chest X-ray revealed a left bronchial pneumonia and pleurisy with a small effusion. With the confirmed diagnosis of D.L.E. treatment was started with prednisone.

Two weeks after admission the chest X-ray was repeated and showed a marked massive pleural effusion on the left. A thoracentesis was performed and 300 cc of cloudy purulent material was drawn off for culture. This produced hemolytic staphylococcus aureus, coagulase positive, which was sensitive to chloramphenicol. This drug was started in a dosage of 500 mg. every 6 hours.

At this time prednisolone was substituted for prednisone and the dose increased daily until a total of 120 mg. per day was reached by the end of the third week. In addition, a combination of tetracycline and nystatin was also given by mouth. The general clinical course of the patient continued to be that of a progressive toxemia without evidence of remission.

Four weeks after admission the patient fell into a shock-like state from which she progressed into coma and succumbed 6 hours later. Laboratory studies on the day of death indicated a CO₂ combining power of 31 vol. per cent, chlorides 102 mEq, blood sugar 130 mg. per cent, potassium 4.5 mEq, sodium 138 mEq, and the blood urea nitrogen was 100 mg. per cent. Post-mortem examination was denied.

DISCUSSION

Despite the lack of autopsy evidence there can be little doubt that this patient had an acute disseminated lupus erythematosus. While it is possible that the development of idiopathic epilepsy and the persistently positive serology could have been on the basis of other conditions, it seems quite likely that these findings were early manifestations of this multi-system disease. Moore and Lutz² have given many excellent examples of this sort of early abnormality in the extensive follow-up of 143 patients with biologic false positive serologies, half of whom eventually developed a clinical syndrome resembling D.L.E. often

including L.E. cells. Many patients have been mentioned in the literature whose disease courses have shown periods of remission for as long or longer than the present case. One patient who eventually died of D.L.E. was believed to have had the disease for a period of 45 years prior to death.³

The presence of epilepsy in D.L.E. was considered to be a coincidence until recently. However in large series of patients which have been carefully studied, epilepsy has been found to have an incidence varying from 7 to 15 per cent.⁴ This has caused confusion in some centers because many patients attending epilepsy clinics have been noted to develop other manifestations of acute D.L.E. and this was at first felt to be a possible reaction to the anti-convulsive therapy. It is now realized that epilepsy can be an early manifestation of the vasculitis and collagen degeneration in D.L.E.

The L.E. test of Hargraves has been an important advance in the diagnosis of this disease state. However, it is evident in reviewing patients such as the one presented that the presence of L.E. cells in the peripheral blood or of the L.E. factor in the patient's serum is a late manifestation of the disease. It is felt by many investigators that the disease process is an abnormal immunologic response by the patient which results in a vasculitis with intimal proliferation which in turn leads to single or multiple system symptoms such as epileptic seizures, skin lesions, endocarditis, polyarthritis, and glomerular lesions, and the hematologic abnormalities of leukopenia, hemolytic anemia, thrombocytopenia, false positive serology, positive Coombs' test, and a circulating anti-coagulant.

It is hypothesized by Dameshek⁵ that these manifestations are on the basis of the formation of an abnormal globulin. Recently such an abnormal globulin has been demonstrated by Friou,⁶ using a special fluorescent antibody technic. He has shown that the presence of the L.E. phenomenon is dependent upon the titer of this abnormal globulin. This globulin is present in low titers in those patients who are in early phases or remission of D.L.E. It has been

shown that the height of the globulin increases as the disease progresses in severity. The abnormal globulin has also been shown to be present in other conditions such as rheumatoid arthritis, hydralazine intoxication and penicillin reactions, all of which at times have been shown to give the L.E. phenomenon.

Again, in these diseases it appears to be a matter of the titer of the globulin which determines the positivity of the L.E. test and also the severity of the disease. One again wonders about the possibility of the so-called collagen diseases being of one basic etiology and that etiology being one of an abnormal auto-immune mechanism. As an example, cases have been described which progress from a mild febrile state through classic rheumatoid arthritis to an acute D.L.E. with L.E. cells present.⁷ It is hoped that the fluorescent antibody technic can be further developed so that it can be utilized by the average hospital laboratory in an effort to identify the early phases of lupus erythematosus before the final acute disseminated phase develops.

SUMMARY

A case of disseminated lupus erythematosus presumed to have been present for twenty-one years prior to death is presented. The early symptoms of epilepsy and an apparent biologic false positive serology are emphasized as features of the disease which should suggest to the practitioner the possibility of the early phase of disseminated lupus erythematosus.

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ASPIRIN POISONING:

TWO ATTACKS OF SEVERE HEMORRHAGIC HYPOPROTHROMBINEMIA FOLLOWED BY AORTIC ANEURYSMAL RUPTURE*

PERK LEE DAVIS, M.D., MARGARET SHUMWAY, M.D., and
BARBARA SIU, B.A., M.S.**

Salicylates of various combinations are not as innocuous as some people may believe. Severe illness and death may ensue from salicylate intoxication, even though salicylate blood levels are not high. All symptoms for which salicylates are given may be produced by salicylate poisoning: fever, aches, pains, vomiting, peptic ulcers, headaches, confusions, urinary symptoms, acidosis, disturbances in chemistry, and hemorrhages. There is no correlation between the amount of bleeding and serum salicylate level. This report is of a case of severe multiple subcutaneous ecchymoses, epitaxis and hematemesis resulting from aspirin poisoning followed by a recurrence of poisoning eight weeks later with rupture of an aortic aneurysm.

K.A., male, age 68 had been adequately treated with penicillin for neurovascular syphilis ten years previously. He suffered periodically from tabetic crises in the face, chest, back and legs as severe burning spots and streaks. For these symptoms he chronically took various aspirin preparations. We were called by his wife at 3:00 a.m. because he was vomiting blood. He could not stop his nose from bleeding and his body was covered with black and blue spots. He had taken over 120 tablets of aspirin (5 grain each) in 24 hours. When we arrived his skin looked like a bad case of meningitic septicemia. Blood prothrombin was taken and fifty milligrams of K₁ oxide (Mephyton) was given intravenously. Fifty milligrams of Mephyton intravenously was repeated in four hours although the

nasal bleeding had stopped within two hours. The original prothrombin was 0 per cent. In 24 hours the prothrombin time was 38 per cent, in forty-eight hours it was 100 per cent. He steadily improved. He was given 1000 mg. cevitamic acid and 30 mg. mephyton orally daily for 10 days. He returned to work. Eight weeks later hemorrhages from nose, stomach and into the skin recurred with the addition of severe pain in the left lumbar region and shock. Prothrombin time was 0 per cent. He had swallowed one hundred eighteen 5 grain aspirins in 24 hours previously, and even though nose bleeds started he continued to take more and more aspirins, the number unknown. He was typed and cross matched for 500 cc. of whole blood. He was given 50 mg. Mephyton intravenously. He was sent to the hospital with the diagnosis of hemorrhages, hypoprothrombinemia due to aspirin poisoning with rupture of aneurysm of abdominal aorta.

He bled to death before vassal graft could be used.

Autopsy showed area of rupture 0.5 cm. at the coeliac axis with retroperitoneal hemorrhage.

Because of vascular syphilis and severe atherosclerosis the aneurysm may have ruptured sometime in the future. But aspirin poisoning had caused hypoprothrombinemia with the result that intravascular pressure effects, plus no clotting power made control of bleeding impossible.

SUMMARY

1. Two severe attacks of aspirin poison-

*From Davis Medical Center, Paoli, Pennsylvania.

**Senior Medical Student, Women's Medical College of Pennsylvania.

ing with hemorrhagic hypoprothrombinemia contributed to rupture of an abdominal aortic aneurysm.

2. Mephyton (K_1 oxide) intravenously and orally contributed markedly to inducing a remission from the first attack of bleeding from aspirin or other drugs which lower prothrombin time.
3. The use of Mephyton (K_1 oxide) in-

travenously and orally is recommended in instances of hemorrhage and bleeding induced by aspirin or other drugs which lower prothrombin percentages dangerously.

4. A case of rupture of an abdominal syphilitic aortic aneurysm to which aspirin poisoning and hypoprothrombinemia contributed to rupture, hemorrhage and death is reported.

A Case Report of MILIARY TUBERCULOSIS AND TUBERCULOUS MENINGITIS TREATED WITH TRYPSIN AND ANTIBIOTICS:

One Year Follow-up

CH. RAPOPORT, M.D.*

A male child, age 10, was admitted to our ward on March 22, 1956. For two weeks prior to admission the patient had been running a temperature of 39.5° C. at home, with prominent cough and dyspnea. His past history was irrelevant except that at the age of seven months the patient had been hospitalized in Morocco and put in plaster cast for a period of eight months. On discharge, at that time, the parents noted a gibbus.

On the present admission the findings of the physical examination were as follows:

The patient was drowsy and at times irritable. The state of nutrition was poor. Marked dyspnea and cyanosis were present. Alae nasi were dilated. He had a marked angular scoliosis. Numerous fine rales were elicited over the lungs. Neurological examination was negative. No pathological reflexes were evident. Temperature 39° C. Pulse 160 p m and regular. X-ray of the chest showed extensive miliary seeding over both lung fields. X-ray of the spine showed severe kyphoscoliosis, secondary to the destruction of the lower dorsal vertebrae.

Laboratory Studies:

1. Blood: R.B.C. 3,500,000 per cmm. Hb 9.7 gm. W.B.C. 8500. Differential: stab 39 per cent, segment 52 per cent, Mono 1 per cent, Lympho 8 per cent, sedimen-

tation rate, 37 mm. per hour; 59 after two hours.

2. Urine: Negative, except for trace of albumin.
3. Lumbar puncture: Cells 9, Pandy positive, albumin 60 mgm. per cent sodium-chloride 118 mgm. per cent, trypsin negative. Spinal fluid for Koch's bacillus culture and guinea pig inoculation was obtained. These tests were reported as negative at a later date.

Mantoux Test: 1:1000 was negative on admission; a second test after three days was read as 4 plus positive.

Treatment:

The patient was given streptomycin - 1 gm. daily intramuscularly; Rimifon 150 mgm. daily, and P.A.S. 4 gm. daily. This schedule of treatment was continued uninterrupted for 26 days.

On the 18th of April the patient was re-evaluated. Clinically he was deteriorating rapidly though dyspnea and cyanosis had improved slightly. His mental condition became worse. He was totally unresponsive and refused food and drink. Numerous excoriating lesions of the mouth and buccal mucosa were present, and marasmus was prominent. Temperature was 39.5° C. Neurological examination revealed no definite pathological findings. Examination of the fundus was negative.

* Petach Tikwa, Israel.

Laboratory studies mentioned on admission were repeated and showed no change, except for the sedimentation-rate, which went up to 70 mm. per hour. Urinary excretion of 17 ketosteroids in 24 hours was 2.5 mgm. X-ray of the chest showed extensive miliary seeding over both lung fields. No improvement was noted.

On April 18, 1956, trypsin in oil* in dosage of 2.5 mgm. intramuscularly twice daily was added to the treatment outlined above. The only other change made was reducing the dose of streptomycin from 1.0 gm. to 0.5 gm. daily by the intramuscular injection.

After 10 days of combined treatment a dramatic clinical improvement took place. Fever dropped to a subfebrile level; the patient started to eat voraciously and responded to his environment fully.

On the 7th of May, 1956, or 18 days after the initiation of the combined treatment of trypsin with the outlined antibiotics he was moving freely about the ward.

On the 15th of May, his temperature had returned to normal and remained so. The patient gained 2 kg. in weight. Treatment with trypsin was continued until the 24th of May, 1956.

Results:

X-ray was taken on the 15th of June, 1956, which was less than two months after the start of the complete clearing of the pulmonary lesion. The schedule of antibiotics was changed by the stoppage of P.A.S. and the continuation of Nicotibine, 150 mgm. daily and streptomycin 0.5 gm. every third day.

X-ray was repeated at monthly intervals and remained stable as compared to the X-ray of the 15th of June, 1956. The patient remained clinically well, attending the regular children's school in the hospital at full activity, except for mid-day rest. Laboratory examinations and X-rays remain within normal limits until the present, 30th of March, 1957.

Antibiotics are being continued.

DISCUSSION

The treatment of miliary and meningeal tuberculosis has improved with the addition of Isoniazid^{1,2}. But the addition of Isoniazid to the armamentarium of treatment did not reduce significantly the complication allegedly due to the inflammatory process and subsequent formation of fibrinous exudate. Numerous efforts have been made to reduce the incidence and extent of the inflammatory reaction. The use of intrathecal tuberculin has met with varied responses. While some have reported dramatic improvement in seemingly hopeless situations^{3,4}, others have had very bad untoward toxic reactions⁵.

The use of streptokinase has resulted in conflicting reports, and has been discarded by the majority of authors. Fletcher⁶ questions the results on the basis of inadequate dosage of the enzyme.

Ashby and Grant⁷ reported success due to the early use of cortisone. Bulkeley⁸ treated patients with ACTH. These investigators used the steroids under the coverage of an antibiotic umbrella and reported a lessened mortality. Feldman et al⁹, after studying the effects of cortisone and hydrocortisone on pia-arachnoid adhesions in cats, concluded that these drugs inhibit the formation of foreign body giant cell granulomata which are commonly found in untreated animals.

We report a case of miliary and meningeal tuberculosis treated in conjunction with intramuscular trypsin in oil. Trypsin was added to the three antibiotics used for several reasons.

1. The accepted treatment followed for a period of 26 days brought no improvement.
2. The anti-inflammatory effect of trypsin in conjunction with antibiotics was shown to be effective in the treatment of tuberculous lymphadenitis refractory to the accepted measures of treatment¹⁰.
3. Because no untoward reaction to the administration of trypsin in oil has been noted in those cases where it has been used previously.

* Parenzyme: The National Drug Company, Philadelphia 44, Pa.

SUMMARY AND CONCLUSION

1. A case of miliary and meningial tuberculosis was treated with intramuscular trypsin in oil simultaneously with three antibiotics commonly used in this entity.
2. Trypsin was added because the antibiotics used for 26 days failed to bring forth an improvement, clinical or roentgenological.
3. After 18 days of combined trypsin-antibiotic treatment the patient, originally moribund, was moving about freely in the ward.
4. After one month of combined treatment the temperature returned to normal and remained so henceforth.
5. After two months of combined treatment there was complete resolution of the pulmonary lesion.
6. After a follow-up of one year the patient's condition remains stable.
7. No side-effects were noted during or after the combined treatment which was continued for only 36 days.
8. It is suggested that trypsin in oil be considered for use as an adjunct with antibiotics in the treatment of cases of miliary and meningial tuberculosis.

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WOMAN'S AUXILIARY

In spite of the severe winter this year has been one of the busiest in the history of the New Castle County Medical Auxiliary. The executive committee and officers have been an enthusiastic source of inspiration in planning and carrying out this year's work. We can, indeed, say to each one of them and to their committees, "Well done!"

Mental health has been a major project. Under the capable direction of the committee chairman, Mrs. Herbert M. Baganz, we have undertaken the job of re-organizing the library of the Delaware State Hospital. We have about 20 members who serve as volunteer workers in that library where they are kept busy sorting and collecting books and magazines, and pushing the library cart to the various wards of the hospital. In December, over 250 books and \$25 were donated to this project, and later we appropriated the necessary \$250 to purchase some needed equipment for re-cataloguing the books. Mrs. Gerald O. Poole, an auxiliary member and trained librarian, is directing the latter phase of the program. We also conducted a successful booth at the Delaware State Hospital Fair on September 24 under the direction of Mrs. James B. Dukes.

Our president-elect and program chairman, Mrs. Joseph J. Davalos, has presented many interesting programs during the year. In September, Mrs. Mary Pedrick, director of social services at Delaware State Hospital, discussed mental health and showed a film "Someone Who Cares". Our November meeting featured our State Poet Laureate, Mrs. John G. Leach. January brought a film and talk on safety with our safety chairman, Mrs. I. Lewis Chipman, Jr. in charge. In March we had a program on the Milk Bank. Mrs. G. Barrett Heckler has arranged all of our luncheon meetings at the University Club and has reported an average attendance of 40 members.

On February 1, we held a dinner dance at the Hotel du Pont under the excellent

direction of Mrs. Allston J. Morris. In spite of a blizzard that day, we had about 60 couples present. Corsages were made by some of the Auxiliary members under the direction of Mrs. Davalos and Mrs. John W. Howard. The proceeds from the sale of these flowers, \$113.75 has been sent to the Drs. Edgar and Elizabeth Miller, who are engaged in missionary work in Nepal.

This year we hope to double our annual A.M.E.F. contribution. Mrs. Willard Preston, chairman of this project, has stressed memorial contributions, and is also in charge of the A.M.E.F. bake table at our annual bridge party in April.

Under the direction of Mrs. Morris Harwitz, a prize is chanced off at each meeting, and the money is turned over to this same fund.

Mrs. James T. Metzger, our sewing chairman, has reported that a total of 7 morning and evening meetings have been held so far this year during which time 110 baby gowns and 20 blankets have been completed and turned over to the Visiting Nurses Association. Mrs. Peter J. Olivere has also obtained over 50 subscriptions to "Today's Health" for our auxiliary.

Our civil defense chairman, Mrs. Joseph M. Messick displayed a sample "disaster car kit" at one of our meetings, and our legislative chairman, Mrs. David J. Reinhardt, has kept us well informed on state and national bills pertaining to medical legislation. We sent a letter to our Congressional Representative, Mr. Harry Haskell, opposing the Farand Bill.

Mrs. James P. Aikins reports a total membership in our auxiliary of 220 with 165 paid members to date. She and Mrs. Robert D. Hunt have worked diligently on this committee and have attempted to make personal calls on all new members. Membership status will be revised by Mrs. John Howard and her committee this year.

+ Editorial +

BANK WITHOUT BANKING HOURS

The Blood Bank of Delaware, a non-profit service organization, has made a significant contribution to blood banking in the state of Delaware during the three years of its existence. While not dealing directly in blood itself, the Blood Bank of Delaware has provided a workable and working method by which responsible citizens can protect themselves against the problems of whole blood replacement, at the same time lifting some of the burden of dealing with prospective donors from the weary shoulders of Delaware's community hospitals. As membership continues to grow, the plan should play an increasingly greater role on the state's blood banking scene.

The Blood Bank owes its conception and much of its vitality to James F. McCloskey, a Wilmington lay leader in Delaware's hospital affairs. Mr. McCloskey, who serves as chairman of the board of St. Francis Hospital, vice-president of the Delaware Blue Cross-Blue Shield plan and secretary to the Governor's Advisory Council on Civil Defense, began formulating plans for a subscriber-based whole blood replacement program in 1954. Approached by a group which had encountered a severe blood replacement problem, Mr. McCloskey, answered with a proposal that matured into the Blood Bank of Delaware.

The most startling aspect of the plan is its simplicity. With membership open to any adult resident of Delaware, its benefits are limited to subscribers and their dependents. In addition to paying one dollar enrollment fee and a dollar annual dues, the Blood Bank subscriber undertakes to provide, when called upon, not more than one pint of medically-acceptable whole blood per year. In actual practice, it has never been necessary to call subscribers this often. At present calls are being made

at the rate of once every five or more years. The interval occurs because the Blood Bank supplies donors to the hospitals only as blood is used by subscribers and no subscriber may be called twice until all have been called once.

In return for accepting this obligation, the subscriber is guaranteed unlimited replacement of all the whole blood he and his family may receive at any community hospital in Delaware, without cost for the blood itself. The subscriber remains responsible for laboratory and administration fees, but Blood Bank membership saves him \$25 of the total cost of \$37.50 per transfusion. In three years the Blood Bank has supplied 5,600 pints of whole blood to Delaware hospitals in replacement for blood administered to subscribers and dependents. The 2,800 pints thus replaced represent a total bill of \$70,000.

Out-of-state coverage is provided on an emergency basis only. A subscriber or dependent overtaken by accident or illness during a brief absence from the state (such as a vacation or business trip) receives the same guarantee of unlimited replacement. A subscriber or dependent who leaves the state for the purpose of hospitalization elsewhere is not covered.

Non-residents in near-by states may take out a conditional membership which will provide equal benefits, *provided* they are under treatment at a hospital in Delaware.

Persons unable or unwilling to give blood personally are not excluded from membership. A subscriber has three means of providing blood in fulfillment of his obligation: he can give it himself, obtain a substitute donor or buy one pint at the prevailing \$25 rate.

The simplicity of the Blood Bank plan combined with the clear need for individuals and families to provide against the necessity of paying for or replacing quantities of whole blood, have combined to make the Blood Bank a popular program. Through the efforts of its first executive director, Frank Gallagher, who assumed his duties in November, 1954, the initial requirement of 5,000 subscribers was met by the following May. At the time of its third anniversary, the Blood Bank can boast of nearly 28,000 subscribers, who with their

dependents account for a quarter of the state's population.

Although such growth in such a short time is almost phenomenal, the Blood Bank has set its sights high. So long as a single citizen of Delaware remains unprotected by the Blood Bank program, missionaries will be needed. It is the hope of the Blood Bank through its directors that the medical profession will utilize their valued physician-patient relationship to advance this worthy cause.

The Medical Council of Delaware and the State Board of Medical Examiners have recently ruled that no graduate of a foreign medical school, either already in this country or yet to come, will be accepted for licensure examination without having successfully completed the examinations of the Educational Council for Foreign Medical Graduates. This is a recently instituted program, designed to insure that successful examinees have demonstrated an acceptable knowledge of medicine.

The Council and the Board further recommend that each hospital in Delaware require completion of the examinations by prospective internes and residents who are graduates of foreign medical schools. This would insure, other criteria having been met, that house officers are prospectively eligible for the Delaware license.

Further information about the examinations may be obtained from the Educational Council for Foreign Medical Graduates, 1710 Orrington Avenue, Evanston, Illinois.

CENTRAL REPOSITORY FOR MEDICAL CREDENTIALS

The Secretary General of The World Medical Association announced that on July 1, 1958, the services of a Central Repository for Medical Credentials will become available to the doctors of the world. All judicious precautions will be exercised to protect the records of depositors.

During war and national uprisings, medical records are destroyed or lost. The plight of hundreds of doctors who fled from their homelands during World War II and the more recent Hungarian uprising stimulated The World Medical Association to undertake means assuring the doctor that he will always be able to prove himself medically trained and fully accredited to practice medicine. Today, many doctors are working as laborers or research assistances as a result of the loss or destruction of their original credentials and the lack of a protective service in which authenticated copies could be deposited.

The development of the Central Repository for Medical Credentials has been in process for approximately four years. During that period, detailed studies revealed:

- ... The need for and interest of the medical profession in this service
- ... The wide variations between countries in the legally acceptable form of medical credentials in establishing qualification to practice
- ... The best method of identifying the individual and his right to the medical credentials
- ... The lowest feasible service rate to assure the life-time utilization of the service for every doctor in the world
- ... Techniques of national and international processing of the application and credentials.

Cost of Service

The life-time cost of the service on a one-payment basis to the newly graduated doctor is approximately \$60.00 (USA). An actuarial schedule has been established for doctors in the various age groups. A ten year service rate is also available.

Provisions have been effected for the depositor to add additional credentials he

receives to his file in the Repository at a minimal service charge.

Credentials Warranting Repository Service

The officials of the Repository recommend that doctors deposit their credentials in a form legally acceptable in the country or countries in which they would desire to establish themselves as qualified to practice medicine. It suggests that the credentials so deposited include

- ... Official medical school record
- ... Medical diploma
- ... Specialist credentials

Photostatic or microfilm copies of the original credentials are recognized or coming to be recognized in an increasing number of countries. However, some countries still require authenticated copies of the original or the original record itself. It is hoped that the medical profession in countries not now recognizing microfilm copy as legally acceptable will undertake the project of having it so recognized.

Promoting the Repository

The cooperation of the national medical associations, their component local societies, the medical press and the para-medical press is essential in developing programs of education and promotion in providing the doctors of the world with information on the availability of and the need for utilizing the service of the Central Repository.

While the fundamental basis of the medical profession is man's humanity to man, and one of the objectives of The World Medical Association is to promote world peace, the scientific education of the doctor directs his objective analysis of facts—world wide as well as medical. The Central Repository for Medical Credentials is a necessary precaution to assure the doctor that he can always prove himself medically qualified to practice his profession should the diplomats and the governments they represent fail in their efforts to achieve world peace.

The World Medical Association
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AMA CITES DOCTOR PLACEMENT "SUCCESS STORIES"

How a local Grange led a community-wide campaign to attract a doctor and how a state medical society promoted the services of its doctor placement service are constant reminders of the work being carried on throughout the country to match communities needing a doctor with physicians seeking a suitable place to practice medicine. Typical community success story which has been brought to the attention of the AMA's Placement Service recently is that of Windsor's Cross Roads, N. C.—population, 125 families.

Here the 30-member Grange organized a Community Development Organization to raise funds for a six-room medical clinic and encouraged Dr. Irvin G. Sherer and his wife to settle there after his discharge from the Navy. For its efforts in this project, the local Grange won the \$1,000 first prize in the North Carolina State Grange Community Service Contest and placed fourth in the National Grange contest. All of the credit for this community's

success goes to its citizens. The Medical Society of the State of North Carolina placement service simply sent Dr. Sherer a list of vacancies, and the citizens of Windsor's Cross Roads did the rest.

An example of how a state medical society promoted its doctor placement service is that of the Medical Association of the State of Alabama. A story last July in the Birmingham News—which later was written into the Congressional Record—points up the fact that 42 communities in the state need doctors and that young doctors oftentimes cannot afford to settle in small towns without some financial assistance. The article cites cases where communities have induced doctors to come to their areas by providing clinics, equipment or rent-free housing for the first years. In addition, the article explains how the placement service operates—emphasizing the fact that the society acts as a clearing house but that 'it's up to the town and the doctor to get together.'

AMA PREPARES NEW TV HEALTH FILMS

The American Medical Association announces that two new 10-minute films will be available about February 1 for use on local television and for showings to school and church groups. "The Silent Killer" deals with the dangers of carbon monoxide poisonings from gasoline exhausts. "Out of Step" tells the dramatic story of an accident which occurs to a child whose father has always ridiculed safety measures, first aid and other so-called "boy scout" ideas.

The Scouts, of course, come to the rescue in the end!

Both of these black-and-white sound films are available on loan to medical societies, local television stations (with medical society approval), health departments, voluntary health agencies and schools. Only charge is for return shipping. These films were developed by the Bureau of Health Education and produced by the Marshall Organization. W. W. Bauer, M.D., Bureau director, serves as narrator.

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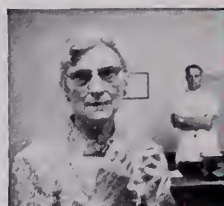
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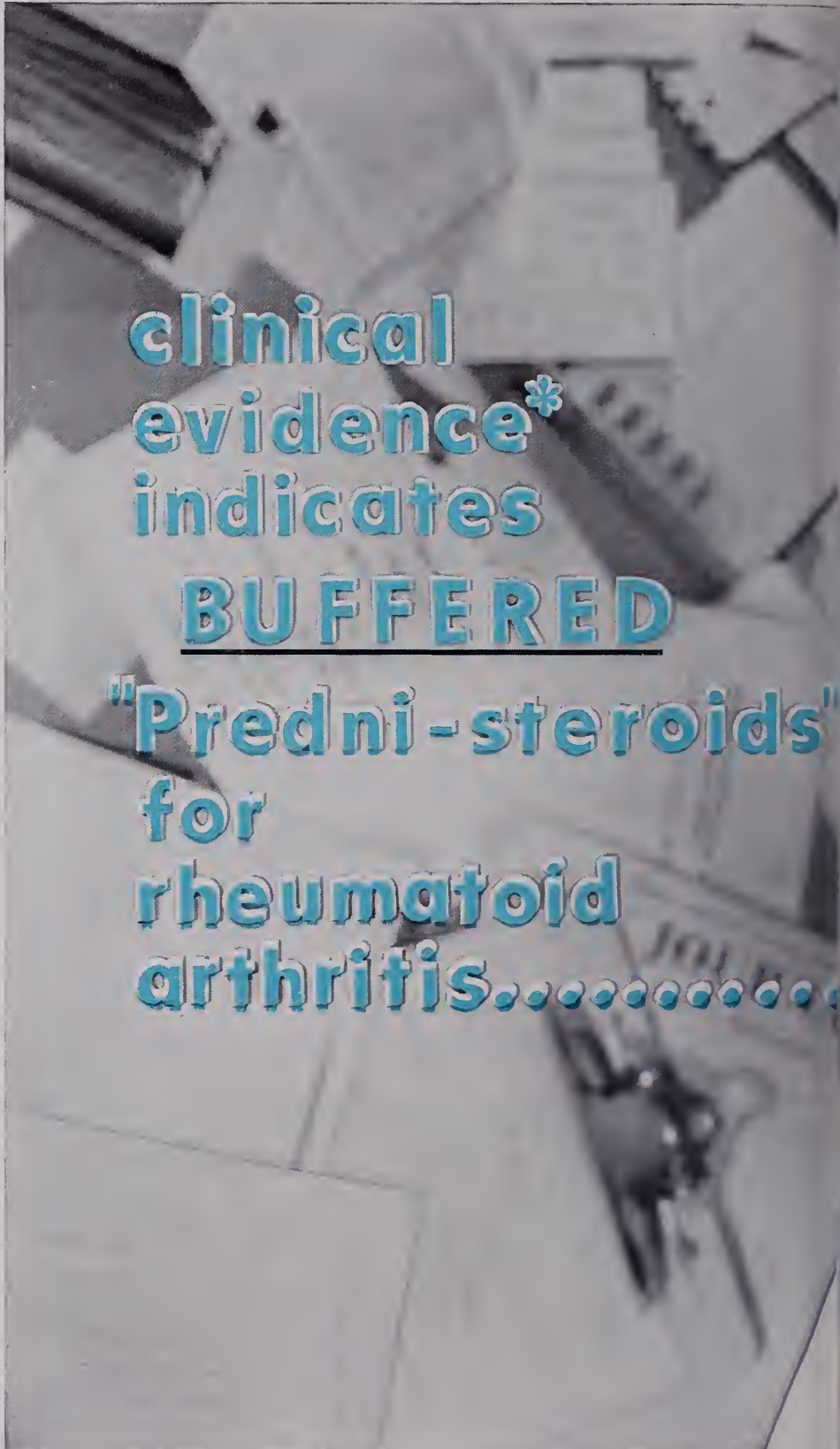
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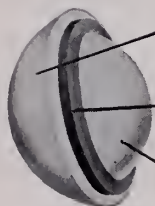
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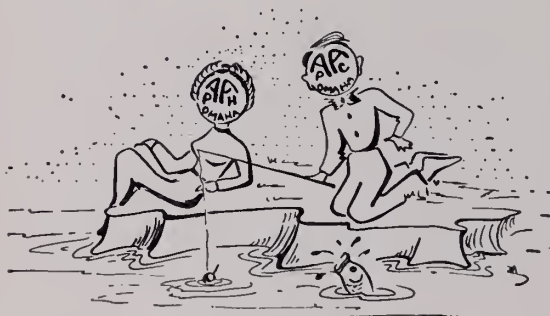
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*Howell, C. M., Jr.: Am. Pract. & Digest Treat. 8:1928, 1957.



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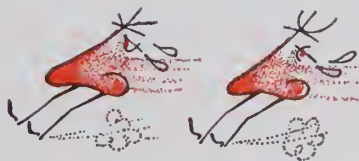
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Herniated disc
Acute fibromyositis
Torticollis

STUDY 4⁶

Pyramidal tract and
acute myalgic disorders

TOTALS



SKELETAL MUSCLE SPASM^{1, 2, 5, 6}

RESPONSE		
moderate	slight	none
6	1	—
13	—	1
4	—	—
—	—	—
1	—	—
2	—	—
2	—	—
—	1	—
—	2	1
28	4	2
(20.3%)		

Comments on Robaxin by investigators



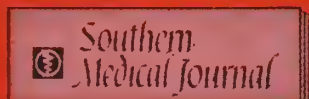
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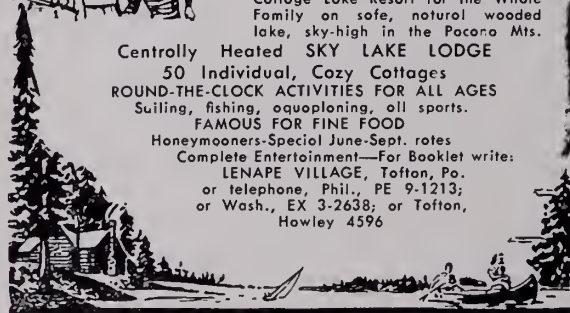
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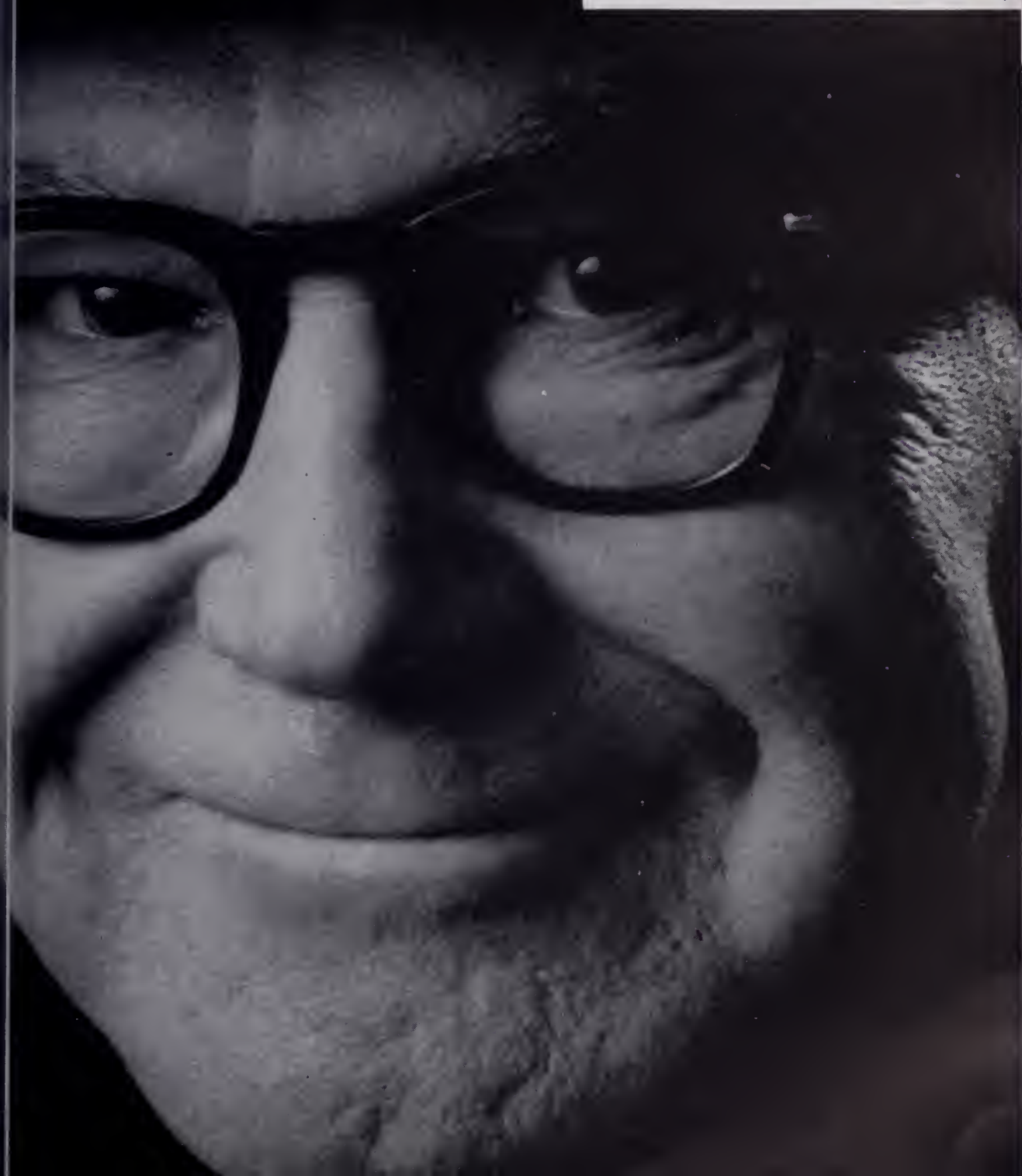
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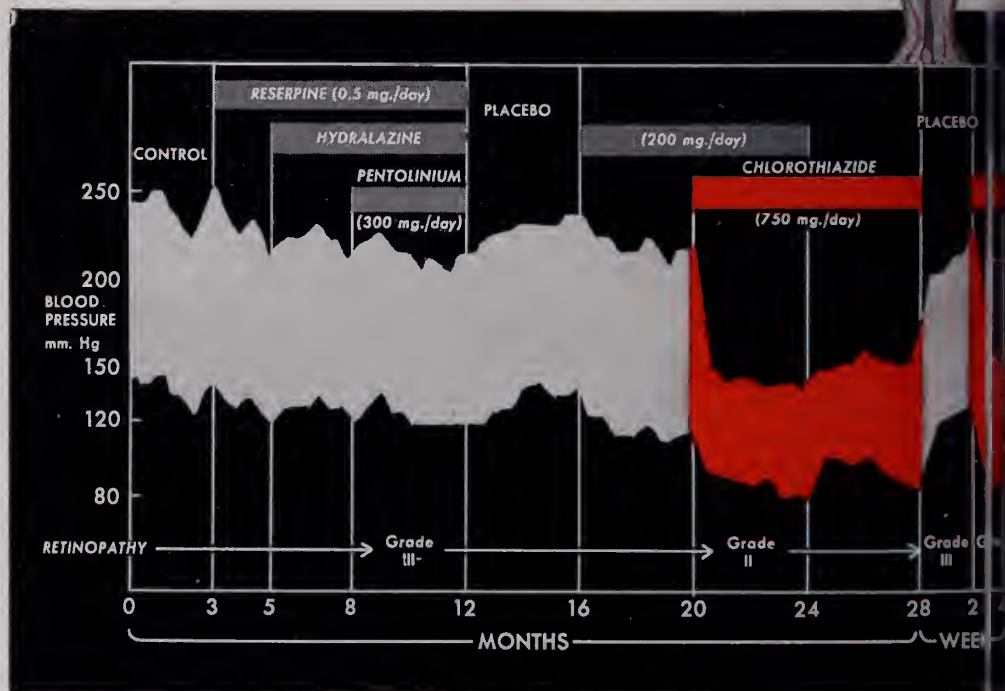
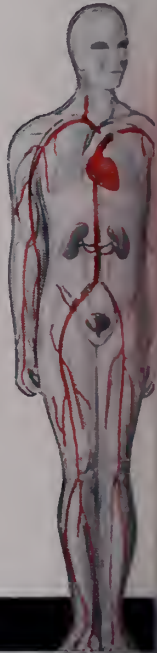
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Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

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Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

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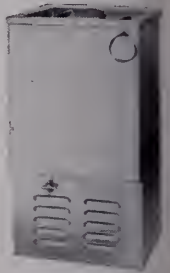
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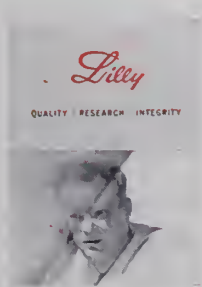
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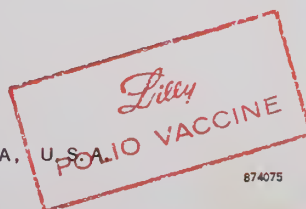
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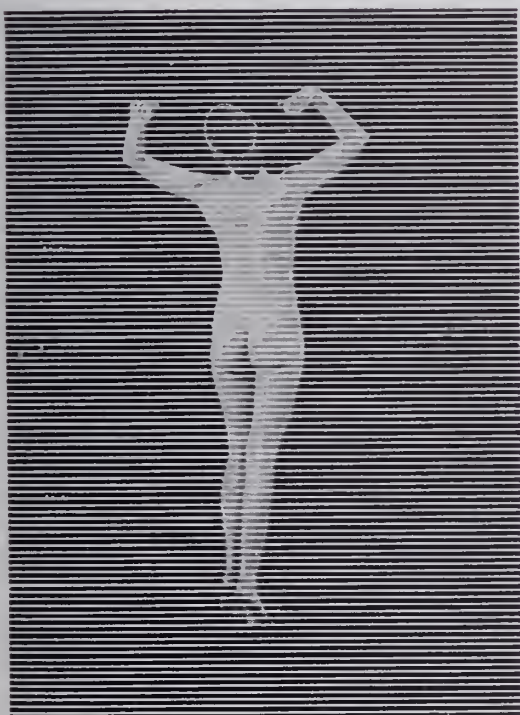
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Riseman, J. E. F., Altman, G. E., and Koretsky, S.:
Nitroglycerin and Other Nitrites in the Treatment of
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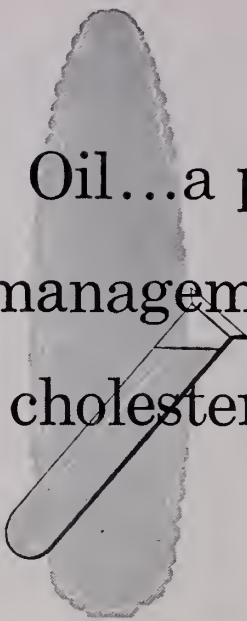
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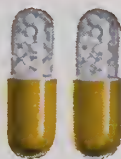
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2. Baird, H. W., III: A comparison of Meprospan (sustained action meprobamate capsule) with other tranquilizing and relaxing agents in children. Submitted for publication, 1958.

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references:

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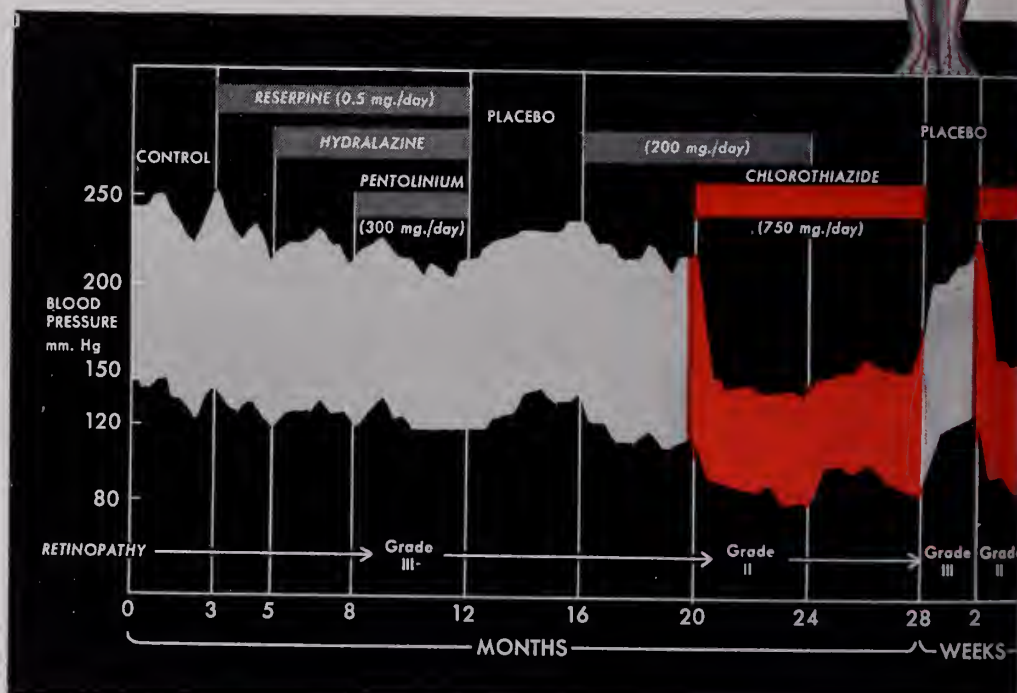
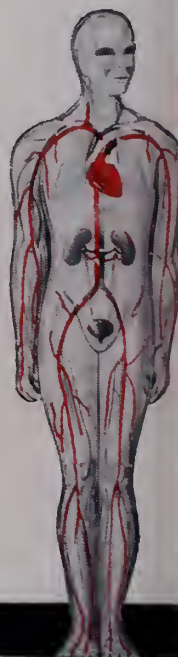
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Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

"Chlorothiazide added to other antihypertensive drugs reduced the blood pressure in 19 of 23 hypertensive patients." "All of 11 hypertension subjects in whom splanchnicectomy had been performed had a striking blood pressure response to oral administration of chlorothiazide." "... it is not hypotensive in normotensive patients with congestive heart failure, in whom it is markedly diuretic; it is hypotensive in both compensated and decompensated hypertensive patients (in the former without congestive heart failure, it is not markedly diuretic, whereas in the latter in congestive heart failure, it is markedly diuretic). ..."

Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

"Chlorothiazide (maintenance dose, 0.5 Gm. twice daily) added to the regimen of 73 ambulatory hypertensive patients who were receiving other antihypertensive drugs as well caused an additional reduction [16%] of blood pressure." "The advantages of chlorothiazide were (1) significant antihypertensive effect in a high percentage of patients, particularly when combined with other agents, (2) absence of significant side effects or toxicity in the dosages used, (3) absence of tolerance (at least thus far), and (4) effectiveness with simple 'rule of thumb' oral dosage schedules."



In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension,"

Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8:1, September,

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Birth	10	10	2	3	6	320
1	12	13	3	4	6	532
2	15	13	3	4½	6	480
3	17	9	3	5	5	520
4	20	11	3½	6	5	610
5	23	11	4	6½	5	700
6	26	10	4	7	5	760

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Age Months	Evaporated Milk Fluid Oz.	Water Oz.	Karo Syrup Tbsp.	Each Feeding Oz.	Number of Feedings in 24 Hours	Total Calories
Birth	6	12	2	3	6	380
1	8	16	3	4	6	532
2	9	14	3	4½	5	576
3	10	15	3½	5	5	650
4	12	18	4	6	5	768
5	12	21	4	6½	5	768
6	13	22	4	7	5	812

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THE PRESENT STATUS OF ANTIBIOTIC SUSCEPTIBILITY
OF THE STAPHYLOCOCCUS

W. J. HOLLOWAY, M.D.* and E. G. SCOTT, M.T.**

In 1955 and 1956 this journal published a series of articles by the present authors^{1,2,3} concerning our studies on the staphylococcus. At that time it became apparent that nosocomial (hospital acquired) infections caused by staphylococci were occurring in this geographical area.

Increased interest in this problem at both the local and national levels is reflected in the creation of hospital committees for study of nosocomial infections and the voluminous reporting in both the medical and lay press. This has been due, in part, to the serious ramifications of outbreaks of staphylococcal infections in the hospital but, particularly, to the fact that certain strains of staphylococci ("hospital strains") show a changing pattern of susceptibility to antibiotics.

In general, the development of antibiotic resistance is dependent on the exposure of the staphylococcus to the antibiotic⁴—the more the antibiotic is used clinically in the hospital, the greater the likelihood of the organism becoming resistant. Since we have observed such a pattern of changing susceptibility in this locale, we feel that it is imperative to continue our studies along these lines and, accordingly, offer this report.

METHOD

Two hundred consecutive strains of *Staphylococcus aureus* (coagulase-positive) isolated from routine clinical material ar-

iving in the Bacteriology Department of The Delaware Hospital were utilized in this survey. The strains were isolated during a 6-week period from March 1, 1958, to April 12, 1958, inclusive. Filter paper discs[†] were used to test the sensitivity of these organisms to 9 antibiotics. As in our previous study¹, a few strains were tested by the test tube dilution technique, no discrepancy being noted between the two methods. The antibiotics included are listed in the accompanying table. We utilize a low concentration disc for all sensitivity studies, and we are convinced that this is the most valuable screening procedure. If a more exact inhibitory concentration is desired, we employ the test tube dilution technique rather than discs of varying strengths. During this study an insufficient number of strains was tested against vancomycin (test tube technique) and ristocetin (disc technique). We have not yet isolated strains resistant to these two agents.

RESULTS

The above table presents the findings of this study and compares the results for the current year with 1957 and 1955. The resistance of the staphylococci to penicillin and streptomycin has remained essentially unchanged during the years under study, having attained the current high order of resistance prior to the 1955 study. Neomy-

[†] The potency of the impregnated discs is as follows: penicillin 2 units, tetracycline 5 mcg., erythromycin 2 mcg., chloramphenicol 5 mcg., streptomycin 10 mcg., neomycin 30 mcg., bacitracin 2 units, novobiocin 5 mcg., and oleandomycin 15 mcg.

* Associate in Medicine, The Delaware Hospital.

** Bacteriologist, The Delaware Hospital.

RESISTANCE OF STAPHYLOCOCCUS AUREUS
DELAWARE HOSPITAL 1955-1958

	1955 (*)	1957 (200 strains)	1958 (200 strains)
Penicillin	78.6%	72.0%	85 %
Tetracycline	30.5	39.0	62.5
Erythromycin	2.6	7.0	16.0
Chloramphenicol	2.0	6.0	9.5
Streptomycin	62.0	55.0	59.5
Neomycin	0	0	0
Bacitracin	—	0	1.0
Novobiocin	—	1.0	2.5
Oleandomycin	—	1.5	6.5

42 to 103 strains tested. See Del. St. Med. Jour. Vol. 27:143, 1955.

cin also has remained unchanged, no resistant strains having been isolated.

A notable increase in resistance has been demonstrated with tetracycline, erythromycin, chloramphenicol and oleandomycin. That this change has developed slowly is indicated by the relatively small increase in resistance between 1955 and 1957. A more striking change has been noted with tetracycline, erythromycin and oleandomycin during the past year. The development of resistance to chloramphenicol has been less marked. This is of interest because approximately equal quantities of tetracycline and chloramphenicol were administered in this hospital during 1957. The increase in erythromycin resistance was anticipated⁴, and we assume that the increase in oleandomycin-resistant strains represents cross resistance with erythromycin⁵. The use of oleandomycin in this institution has been minimal. There has been little change in bacitracin or novobiocin resistance.

DISCUSSION

Widespread usage of popular antibiotic agents will result in their ineffectiveness against the staphylococcus. This has been adequately demonstrated in this study by

the increase in resistance to tetracycline, erythromycin, and, to a lesser extent, chloramphenicol. Novobiocin continues to be an effective agent in this area. Neomycin and bacitracin also are effective and, in spite of their inherent toxicities, are indicated in treating carefully selected cases of severe staphylococcal infection. Any further discussion of treatment is not within the scope of this paper. Indiscriminate usage of these effective antibiotics must be discouraged.

SUMMARY

The results of a survey of 200 pathogenic strains of *Staphylococcus aureus* tested *in vitro* against 9 antibiotics are presented. The results are compared with similar studies in 1955 and 1957.

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VENOUS-SHUNT SURGERY FOR ESOPHAGEAL VARICES

Case Report and Brief Review of the Literature

R. D. PULLEN, M.D.* and J. F. HUGHES, M.D.**

INTRODUCTION

In recent years there have been several advances in the understanding and care of patients with portal cirrhosis. The bleeding and coma complications of cirrhosis have been of particular interest because of the high morbidity and mortality of these groups. Welch, et al¹ in a series of 50 patients bleeding from esophageal varices, found a mortality of 80 per cent within one year of bleeding, (66 per cent died in the hospital during the first bleeding episode and another 14 per cent died before the end of the year.) One third of the patients who died did so after going into coma and all of the patients died who went into coma after hemorrhaging from varices.

VENOUS-SHUNT PROCEDURES

Since about 1945, surgical maneuvers have been available for patients who hemorrhaged from esophageal varices due to portal hypertension. These are shunt procedures between the portal and systemic venous systems, bypassing the liver. The major drawback to these procedures is that many patients who could benefit most are not suitable operative risks. Ellis, et al² in a follow-up of 125 patients, reported an overall mortality of 29 per cent and an operative mortality of 11 per cent. However, those patients who did survive benefited in several aspects. In 81 per cent of the patients surviving splenorenal shunt there was marked reduction in the size of the varices, (37 per cent showed no residual evidence of varices). Eighty-four per cent of the patients who survived portacaval shunt showed a reduction of the varices, (47 per cent revealed no residual

varices.) Liver function was improved in a large number of these patients, as evidenced by liver function tests. Also, there was a dramatic clinical improvement after operation in many patients who had shown no improvement pre-operatively on good management.

If venous-shunt surgery can produce such results, to what patients should it be offered? Child and Donovan³ have proposed three general groups:

1. Patients who have survived one or more hemorrhages.
2. Patients with cirrhosis and varices who have not bled.
3. Patients with cirrhosis, in otherwise good health, whose ascites is not controlled by good medical management.

Each group presents its own questions. First is the problem of major surgery in a patient with advanced portal cirrhosis. The operative mortality in these patients is related to the liver function: i.e. good liver function, low mortality; poor liver function, high mortality. Ebling et al⁴ reported on 140 patients undergoing venous-shunt surgery for portal hypertension. There were eight deaths due to liver failure (not hemorrhagic or operative deaths). The patients were divided by degree of liver involvement as follows: mild (BSP 10 per cent or below), moderate (BSP above 10 per cent, serum albumin above 3 grams) and severe (BSP above 10 per cent, serum albumin below 3 grams). His results are: mild—43 patients, no deaths; moderate—88 patients, 5 deaths; severe—9 patients, 3 deaths.

Child and Donovan³ list the following as contraindications to venous-shunt surgery: hepatic coma, ascites, serum albumin below 3.5 grams, and serum bilirubin above

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1.5. They readily admit that these criteria are perhaps too rigid and hence deserving patients will be refused surgery. However, any less rigid restriction produces a much greater mortality. Conversely, conventional figures give a 40-60 per cent mortality for cirrhotics within one month of the first hemorrhage.

Should then, all patients with known varices be offered venous-shunt surgery? Or, to carry this one step further, should all patients with known cirrhosis be offered surgery? As pointed out by Child³, these two questions can not yet be answered because the probability of varices bleeding or of cirrhotics developing varices is not known. In the experience of Welch, et al¹ the incidence of bleeding in patients with cirrhosis is approximately 30 per cent or greater. This would lead one to think that prophylactic shunt surgery should be done. Further investigation in these two areas is needed.

It is generally agreed that ascites is a contraindication to venous-shunt surgery. Yet there is a small group of patients with ascites who may be benefited by such procedures. They are the ones who are in generally good status except that ascites persists in spite of good medical management (salt restriction, diet therapy, etc.). Eisenmenger and Nickel⁵, reported five patients with cirrhosis who had disappearance of ascites following portacaval shunt to reduce portal hypertension. If fluid retention later reappeared in these patients it was as peripheral edema, not ascites.

Eisenmenger and Nickel⁵, also presented an explanation for the temporary occurrence of post-operative ascites, which sometimes may even be seen to form at the operation. Because of the increased hydrostatic pressure from portal hypertension in the liver bed, fluid is forced into the lymphatic system much as it is elsewhere in the body. At surgery, the dissection at the porta hepatis produces cutting and blocking of lymphatics with resultant temporary ascites.

Before proceeding with venous-shunt surgery, the patient should be brought into

the best possible general medical condition, since such procedures are formidable. Rest, salt restriction, adequate diet and abstinence from alcohol are essential. Concentrated human serum albumin may be of help in special circumstances. Paracentesis should be avoided.

Post-operative care of these patients must be pains-taking, since this may mean the difference between a successful operation and an operative mortality. Ebeling, et al⁴ have outlined an excellent basic program.

1. Nasal oxygen for the first 24-48 hours to aid in anoxia.
2. A minimum of 250 grams of glucose daily I.V., until that much can be taken orally (usually 3-4 days).
3. Decreased protein (40-60 grams maximum) and increased carbohydrate (about 300 grams) if signs of liver failure appear.
4. L-glutamic acid orally or sodium glutamate I.V. if signs of liver failure appear.
5. Supplemental vitamins, particularly C, K and B complex.
6. Transfusions to maintain a hemoglobin of 12 grams.
7. Dangle on fourth day (clinical situation permitting).

HEMORRHAGE

In patients with cirrhosis the possibility of hemorrhage from esophageal varices or of hepatic coma is ever present. Certain features for managing the hemorrhaging patient are self-evident. Bleeding must be stopped. An effective means for stopping it is the use of the Sengstaken-Blakemore tube. Shock must be treated and blood loss corrected. One fact that is frequently overlooked is that blood in the intestine must be evacuated. A mild purgative and enema should be used.

Over sedation must be avoided. Morphine and long acting barbiturates are contraindicated, but small doses of Demerol or Phenobarbital may be used. During and following this initial period electrolyte abnormalities should be corrected; concentrated glucose and vitamins given; and, if necessary, blood ammonia reduced by

using sodium glutamate. Broad-spectrum antibiotics aid by decreasing the urease production from the intestinal bacteria.

HEPATIC COMA

Hepatic coma must be assiduously watched for particularly in hemorrhaging or post-operative patients, since in these it may be reversible. Also the prognosis is better if treatment is begun in the pre-coma stage⁶. Hepatic coma goes through three stages each of which may vary in duration from hours to days or weeks.

1. Impending coma: changes in consciousness, euphoria, absentmindedness, confusion, drowsiness, inappropriate behavior. Fever may be present, EEG may be abnormal.

2. Stupor: may be aroused, but is confused; fever usually present, EEG abnormal.

3. Coma: not responsive to noxious stimuli, flaccid, may be fetor hepaticus, often has fever.

McDermott⁷ has classified hepatic coma into three groups: acute exogenous encephalopathy, acute spontaneous encephalopathy, and chronic encephalopathy. Group I are those with ammonia intoxication, *per se*, due to some precipitating cause. In Groups II and III, the ammonia metabolism dysfunction is only one facet in a multiplicity of metabolic abnormalities. Hence, in any suspected hepatic coma a search should be made for a precipitating factor. Friedman and DeLuca⁸ have compiled a complete list of these:

1. Hemorrhage.
2. Paracentesis.
3. Overwhelming infection.
4. Fulminating hepatitis or acute necrosis of the liver.
5. Transfusion reactions.
6. Oversedation.
7. Surgery or trauma.
8. Excess fluids.
9. Dehydration.
10. Meat intoxication after shunt procedure.
11. Hepatotoxic substances.
12. Excess fatigue.

13. Drug induced (Diamox, Ammonium chloride, mercurial diuretics).

14. Unknown.

Any precipitating factor must be eliminated.

It has been shown clinically that L-glutamic acid or sodium glutamate will reduce elevated blood ammonia and help to correct the syndrome of ammonia intoxication, particularly in the acute exogenous group. Bessman⁹ has demonstrated the metabolic pathways of ammonia metabolism in the brain. The major portion of oxidative phosphorylation of the brain is derived from the Krebs' cycle. Since the Krebs' cycle is self-regenerative, minimal concentrations of any one member are present at any one time. Hence, any reaction reducing alpha-ketoglutaric acid would reduce succeeding members of the cycle. Oxygen utilization and formation of metabolic energy (high energy phosphate) will diminish in direct proportion to the reduction of alpha-ketoglutaric acid. In the presence of glucose, glutamin is synthesized from glutamic acid and ammonia. Also, alpha-ketoglutaric acid and ammonia are synthesized into glutamic acid. Hence, glutamic acid therapy tends to spare alpha-ketoglutaric acid.

It has been postulated that a damaged liver can handle ammonia metabolism if it is not bypassed by collateral circulation or venous-shunts¹⁰. Faloon, et al¹¹ proved one part of this by demonstrating that, in patients with portacaval shunts, the venous ammonia levels are higher just above the shunt and above the renal veins than above the hepatic veins or in the peripheral venous system. Therefore, ammonium chloride, high protein diets, or intestinal hemorrhage are more hazardous in cirrhotic patients after a portacaval shunt.

CASE REPORT

L. B. (D.H. #220723), a 46 year old man, was admitted to this hospital on two occasions, November 1954 and May 1955, for massive gastro-intestinal hemorrhage with hematemesis. Excess alcohol intake was denied, as were symptoms of peptic disease. Physical examination revealed a

stocky muscular Negro male who appeared to be in a good state of nutrition. There was slight hepatomegaly on the first admission. This had increased to 3-4 fingerbreadths enlargement, primarily left lobe, by the time of the second admission. On the first admission the initial hemoglobin was 6.6 Gm., later corrected to 11.7 Gm. Liver function studies: total protein 5.8 Gm. per cent with albumin 2.2 Gm. per cent and globulin 3.6 Gm. per cent, bilirubin 1.8 mg. per cent total and 0.32 mg. per cent direct, BSP 40 per cent, cephalin flocculation 3 plus in 24 and 48 hours, and alkaline phosphatase 10.6 units. An esophagram demonstrated esophageal varices. Venous-shunt surgery was considered on the first admission but the patient refused.

On the second admission the lowest hemoglobin was 8.8 Gm., with rapid blood replacement in process at the time. Liver function studies were essentially unchanged. On June 17, 1955 an end-to-side portacaval shunt was performed under general anesthesia (Pentothal, Nitrous oxide and Anectin). Portal pressure, measured in an omental vein was 450 mm. saline. A biopsy of the liver revealed portal cirrhosis, which confirmed the surgeon's gross impression.

During the procedure ascites was noted to be forming. The first post-operative week was poor with rapid improvement during the second week, except for continued presence of ascites. For approximately three days early in the third post-operative week, the patient demonstrated impending hepatic coma with lethargy, restlessness, incoherence and confusion. Protein intake was discontinued and carbohydrate was increased. Metacorten was started and vitamins were increased. There was much improvement during the following 24-48 hours. However, the ascites persisted and peripheral edema developed. These were controlled with mercurial diuretics. The Metacorten dosage was tapered and stopped. He was discharged on August 30, 1955.

For the next 27 months he apparently did well, although his return visits were sporadic. He was reported to be doing light work. In March, 1957 the liver was not

palpable, although the serum proteins were unimproved.

On December 3, 1957 he was admitted with a history of scleral icterus for one month, progressively lighter stools and anorexia for two weeks, and increasing lethargy for a few days. He had been unemployed for one month. Alcoholic intake was denied. He was in a dehydrated, stuporous state, but still responded to painful stimuli, with marked sclerae icterus and fetor hepaticus. There were occasional purposeless motions of the extremities. The liver was markedly enlarged to about one handbreadth and protruded anteriorly into a ventral hernia at the upper portion of his old surgical scar. Stools were light brown.

Laboratory data: hemoglobin 12.5 Gm., WBC 16,600, serum protein 8.2 Gm. with serum albumin 1.2 Gm., bilirubin 20.0 total and 12.4 direct, alkaline phosphatase 19.7, serum transaminase 210 units, plasma chloride 109 mEq per liter, plasma CO₂ 17 mEq per liter.

Therapy for hepatic coma instituted: hypertonic glucose with sodium glutamate I.V., vitamins C and B complex and Tetracycline. However, the patient developed deepening coma and expired 30 hours after admission.

Pertinent autopsy findings: liver and gallbladder 3800 grams. The liver presented a nodular external surface, the nodules measuring 2 to 10 cm. Cut section also showed these nodules. There were several foci of gross tumor formation evidenced by the presence of hemorrhagic masses from which hemorrhagic tissue could be expressed. Some of the intra-hepatic blood vessels contained friable hemorrhagic material with the gross appearance of tumor tissue. The intra-hepatic bile ducts were patent. The porta hepatis was involved in dense post-operative adhesions. Dark grayish-black stones, 1 to 2 mm. in diameter were in the extra-hepatic ducts, although not completely obstructing the lumen. The gallbladder was distended to 12 by 10 by 8 cm.

Lungs: right lung 675 Gm., left lung 700 Gm. Nodules ranging in size from 0.7 to 1.5 cm. were present in the left upper

lobe and basal surface of the right upper lobe. Cut surface of these nodules presented bulging grayish-brown, well circumscribed, grossly neoplastic tissue. Microscopically, this was metastatic tissue from the liver cell carcinoma.

G. I. Tract: there were several distended submucosal veins in the middle and lower thirds of the esophagus. There was no evidence of bleeding in the G. I. tract.

The site of the portacaval anastomosis was dissected and was patent. The circumference of the portal vein was 4 cm. and the inferior vena cava, 7.5 cm. There was no evidence of leakage at the anastomosis site.

DISCUSSION

It is obvious that the prognosis for a cirrhotic patient becomes grim following an episode of hemorrhage from esophageal varices. Likewise, the mortality and morbidity from venous-shunt procedures are high. Child³ has reported an 18 per cent incidence of neuronutritional deficits in patients with end-to-side portacaval shunts. If this is added to the overall mortality rate of about 30 per cent, the mortality and morbidity is nearly 50 per cent. If this figure is accepted, it still surpasses the 80 per cent mortality within one year of hemorrhaging from varices.

Venous-shunt surgery is most probably the treatment of choice in the cirrhotic patient with mild to moderate hepatic involvement, after bleeding from esophageal varices. The difficult decision concerns the patient with severe liver involvement. If all such patients are refused surgery, some will be rejected who might be benefited. Conversely, if all are accepted, the mortality would be prohibitive. Hence, selection of the patient in this group must be individualized, with the statistically high mortality ever in mind. The patient presented here is a good example. By liver function test, he was in the bad risk group. On the other hand, his general appearance was that of a well nourished, muscular man appearing younger than his chronologic age. Also, he had experienced two nearly exsanguinating hemorrhages in a period of

six months. The post-operative course was initially poor, but following discharge he had 27 months of productive life with no apparent bleeding.

The patient's return for follow-up was sporadic. Therefore, it was not known how well his regimen was maintained although both he and his family claimed good nutrition and abstinence from alcohol.

Clinically, it was the impression that the final admission was due to endogenous liver failure, not precipitated by any external factor. Superimposed on this was the widespread involvement of the liver by liver cell carcinoma.

Prophylactic venous-shunt surgery in the cirrhotic patient with varices which have not bled is as yet both controversial and speculative.

SUMMARY

1. A brief review of the literature pertaining to venous-shunt surgery is presented.
2. The associated complications of hemorrhage and of hepatic coma are briefly discussed.
3. A case history is presented of a patient who survived two massive hemorrhages from esophageal varices. Portacaval anastomosis was performed three weeks after the second hemorrhage.

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ARGENTAFFIN CARCINOMA* ARISING IN TERATOMA OF OVARY

T. W. ROBERTS, M.D.**

Benign cystic teratomas (dermoid cysts) of the ovary occur in about 5% of all cases of ovarian tumors.¹ Much less common is the malignant teratoma. Kermauner reported two solid teratomas among 283 dermoids and Mayer one of 131. Of the numerous structures and tissues comprising teratomas, only two examples of argentaffin carcinoma in a teratoma were reported before 1939. These tumors occurred in relation to gastro-intestinal tissues. Extensive review of the literature discloses six additional cases to date.

The following example of a carcinoid tumor growing in relation to respiratory epithelium seems worthy of publication because of its rarity and the possibility of its representing a bronchial adenoma.

CLINICAL HISTORY

E. P., Case #51451, a 79 year old white female was admitted to the Delaware Hospital complaining of an abdominal mass which she had noted for three to four weeks. There was some pain and tenderness. Vaginal bleeding was denied. A bilateral salpingo-oophorectomy was performed.

GROSS PATHOLOGY

The tissue was received in the fresh state. The left tube and ovary were not remarkable except for ecchymotic areas on the serosa of the tube. The ovary measured 3 x 2 x 0.8 cm.

The right ovary was a large bilobed cystic mass measuring 28 x 15 x 13 cm. and

weighing 2750 Gm. The external surface was smooth, bluish-gray and presented prominent blood vessels within the wall. When sectioned, the mass was multilocular and the contents showed variation in substance and consistency. One compartment contained yellow grumous material and another presented tufts of hair embedded in a brown gelatinous material.

HISTOLOGY

Microscopic sections revealed foci of skin and subcutaneous tissue with many accessory skin structures. Elsewhere, there was characteristic respiratory epithelium beneath which were cartilaginous rings and collections of mucous glands.

Continuous with the pseudostratified ciliated columnar epithelium was a focus of stratified squamous epithelium. At one point, this epithelium gave rise to a differentiated squamous cell carcinoma (Fig. 1). There was an infiltration of the underlying stroma.

Most striking was an epithelial growth giving the appearance of the typical carcinoid tumor (Fig. 2). The component cells were uniform, being round to polygonal and arranged in organoid clusters and tiny duct-like glands. The cytoplasm was scant and granular and the nuclei had stippled hyperchromatic chromatin. No mitotic figures were noted.

This neoplasm grew in relation to the respiratory tissues, but none of the sections showed involvement of the epithelium. No other organ type was seen in this area after multiple sections.

Nerve trunks and perineural spaces were infiltrated. The tumor was in relation to large bundles of smooth muscle at the op-

* Use of the name carcinoid tumor is to be deprecated. Its implication of benignancy is misleading and unsafe. While most of the reported cases apparently have been locally invasive only, there are many records of metastasizing and fatal tumors of this type. The tumor is a genuine carcinoma and should be called argentaffine carcinoma or Kulschitzky-cell carcinoma.

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FIGURE 1

Respiratory epithelium showing infiltration of stroma by squamous cell carcinoma.

posite pole from the respiratory tissue. Conceivably, this could represent muscularis of the gastro-intestinal tract. Careful study failed to reveal any gastro-intestinal epithelium. (Special stains for argyrophillic and argentaffine granules were negative.)

DISCUSSION

Many tissue types have been observed in teratomas* and most have shown neoplasia. One of the rarer growths is the argentaffin carcinoma. To date no unequivocal carcinoid type of bronchial adenoma has been reported.

Though histologically similar, the carcinoid type bronchial adenoma is believed to have a different origin from that of the gastro-intestinal carcinoid. The latter tumor arises from the Nicolas-Kultschitzky

cells of the gastro-intestinal tract. Extensive investigations by Masson² developed the view that argentaffine cells are specifically differentiated cells of the intestinal epithelium.

Holley³ states that he demonstrated argentaffine granules in one of 34 cases of carcinoid adenoma of the bronchus. The exact origin of bronchial adenomas is still undetermined.

Proceeding upon the premise that there are no Kultschitzky cells in the lung, one would expect carcinoid bronchial adenomas to react negatively to stains for argentaffine granules. (Employing these criteria, Falkner⁴, disqualified his case as being of bronchial origin and suggested gastro-intestinal origin despite the absence of recognizable gastro-intestinal structures.) By the same token the case of Mitchell and Diamond⁵ also becomes equivocal.

The present case, like the above two, grows in relation to respiratory tissue but

* Novak states that the dermoid cyst (benign cystic teratoma) is a benign tumor, all the abnormal tissue elements being well differentiated. The teratoma is to be classed as a malignant one, the fetal elements being of undifferentiated type and the clinical course being characterized by such malignant features as recurrence and metastasis, with death resulting in a large proportion of cases.

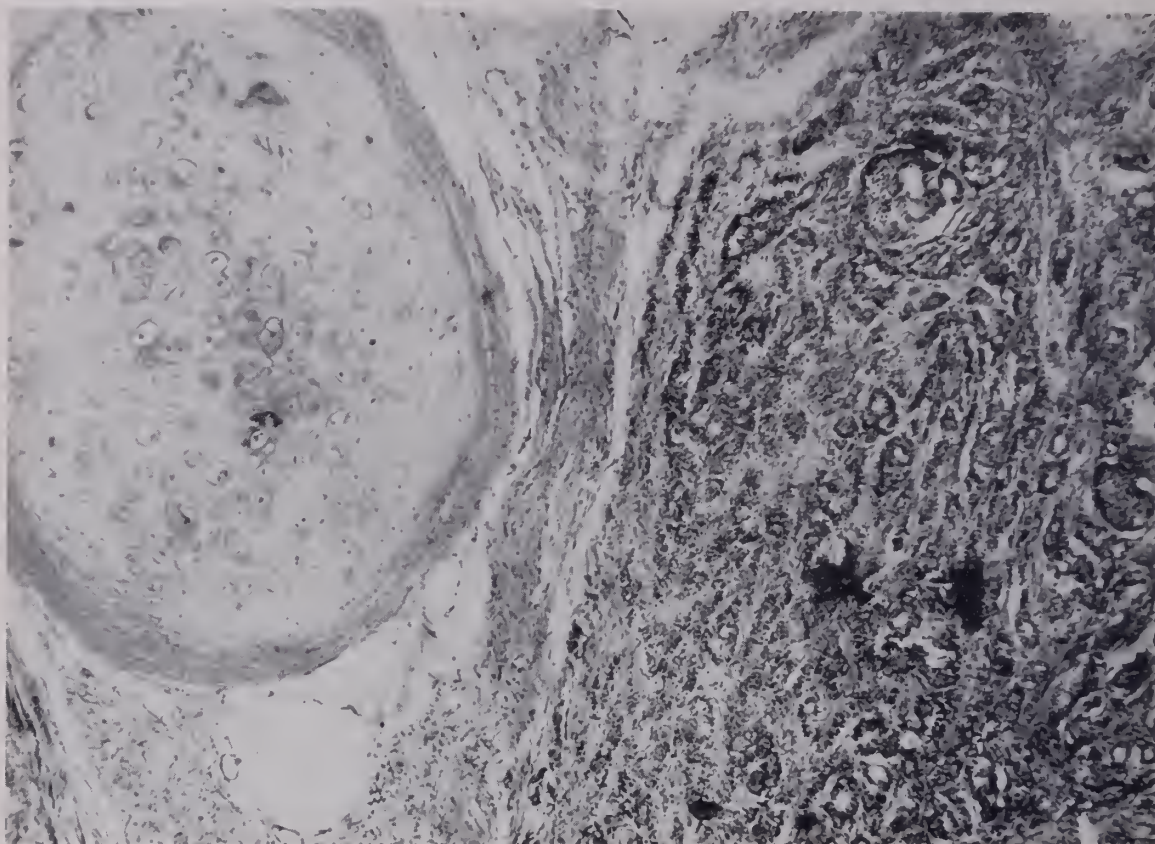


FIGURE 2

Carcinoid tumor growing in relation to respiratory tissue. Respiratory epithelial border at lower left.

stains negatively for both argyrophil and argentaffine granules. The stain for argentaffine granules is subject to extreme perfidy in that gastro-intestinal carcinoids are not uniformly positive. Time and temperature⁶ before fixation have been shown to be critical in the demonstration of argentaffine granules. Just how significant the use of Bouin's solution as a fixative is on these results is open to controversy.

Myohypertrophy in carcinoids of the gastro-intestinal tract has been discussed often and this was noted in three of the earlier reported cases. The prominent muscle bundles on one aspect of our tumor is commented on in the microscopic description and might cause doubt that it was of bronchial origin (Fig. 3).

Obviously, the exact origin of this tumor remains obscure and it is presented only as of possible bronchial origin.

CONCLUSION AND SUMMARY

An additional case of argentaffine carcinoma in an ovarian teratoma is added to the literature. This tumor grows in relation to respiratory tissue and the possibility of its origin in a bronchus is discussed. This thought is offered only as a possibility as the evidence is inconclusive.

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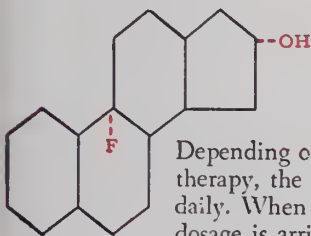
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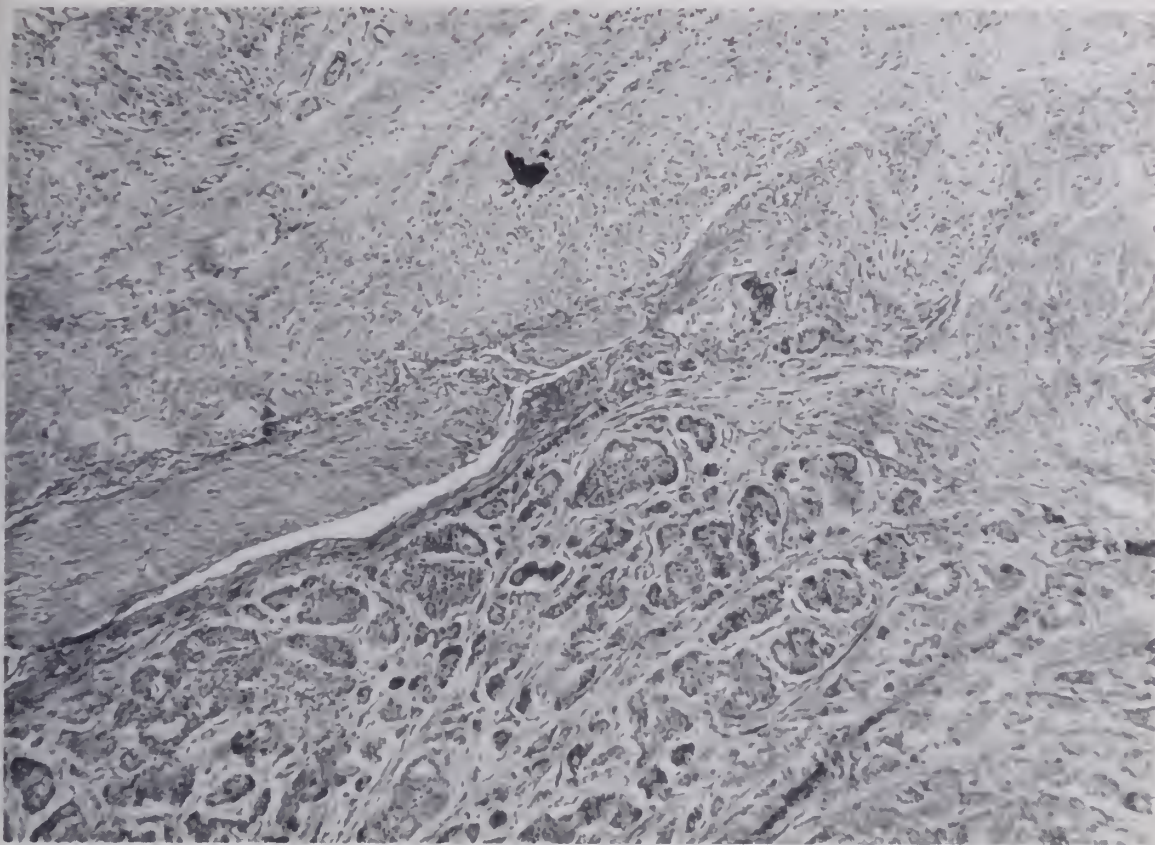


FIGURE 3
Carcinoid tumor adjacent to hypertrophied smooth muscle.

NUTRITION—ITS ROLE IN REHABILITATION*

I. LEWIS CHIPMAN, JR., M.D.**

The subject of nutrition and its importance in rehabilitation of the individual who has suffered a chronic illness or injury is one which is not only important but voluminous. The science of nutrition is still in its relative infancy, but much has been learned over the past few years. Discussion of some of the high points relative to this subject seem in order, for there is no one in any sphere of medicine today who deals with the living patient who does not have this problem to cope with in the management of various diseases.

It has been adequately put that "food improperly taken not only produces diseases, but affords those that are already engendered both matter and substance". It also has been said that "one meal a day is enough for a lion and it ought to be for a man". It should be added that this may be true in periods of health, but not in disease.

From the days of early Greek and Roman physicians, the importance of diet in the treatment of disease has been well recognized. Only in recent years has it been shown that the administration of foods and certain of their constituents to persons with deficiency diseases restore them to health. Much remains to be accomplished in regard to this field of medicine. From birth to death, man is faced with obstacles to good nutrition. Many conditions may arise to prevent his having an adequate intake of essential nutrients, and he is subject to many diseases that interfere with their absorption or utilization. When for any reason a deprivation of nutrients occurs, protective mechanisms within the body serve to compensate for them; but if the deprivation becomes protracted, these mechanisms eventually fail and signs of bodily derangement begin to appear.

Consequently, one may detect the onset of dermatitis or neuritis or certain ocular symptoms during riboflavin deficiency. These are, however, just presenting symptoms of what can be called nutritive failure. Nutritive failure itself does not indicate why nutrition has failed, but simply that it has failed.

In order to rehabilitate the person with nutritive failure we must whenever possible remove the causative factors and apply therapy. This not only will correct the failure but also will restore completely the patient's nutritional status. Primary malnutrition occurs as a result of failure over a period of time to ingest a diet which is adequate in all essential nutrients. Secondary malnutrition occurs when any disease or diseases interfere with the orderly processes of nutrition. Consequently, it is not sufficient that a person has access to adequate food. It must be properly prepared and contain sufficient amounts of all the necessary constituents. These must be ingested and absorbed before the body can utilize them. Any illness may interfere with the natural state which urges us to obtain food. Consequently normal nutrition is the ultimate of this mechanism.

If diseases raise a barrier to the proper assimilation and utilization of nutrients or if, in the absence of disease, the intake of these nutrients is insufficient for the body's needs, all stabilizing forces eventually fail. It is then that nutritional failure can occur. The problem is to replenish the tissues. Consequently, the idea of minimum food requirements has often been assumed erroneously. It is well known that not only diseases but also differences in race, age, and environment as well as psychological stress demand entirely different requirements. Consequently, our knowledge of the total vitamin content of the body either in the deficiency of disease or in good health is meager.

* Presented before the Delaware Chapter of the American Academy of General Practice at the symposium on "Rehabilitation of the Chronically Ill Patient", April 13, 1957.

** Associate in Medicine, Chief, Gastroenterology Clinic, Delaware Hospital.

The physician may prescribe vitamins for a few days during an acute phase of a disease and see the patient respond rapidly. Because the impoverished cells of the body are no longer drawn on for certain body nutrients (they being supplied from the outside) one can get an increase in feeling of well-being from even a short attended period of therapy. Nevertheless, the causative factors of the deficiency would not be remedied.

It is obvious that vitamins cannot take the place of a liberal, well-balanced diet; and I wish to stress again that a diet adequate for a normal person will not restore the nutritional status of a malnourished individual. In that individual the allowances must be far above those recommended for the normal person. Although rehabilitation through nutrition seems simple it requires education of the patient in the importance of diet for the acquisition of good health and its maintenance.

Nutrition in the chronically disabled or the individual recovering from a prolonged illness or the aged individual is more than diet. There is a considerable spread between the ingestion of food stuffs and the utilization of vital nutritional elements by the parenchymal cells. Nutrition involves not only ingestion of adequate balanced quantities of all necessary nutritive elements, but also their digestion in the alimentary canal, absorption, transport to tissue cells, and their cellular utilization for both anabolic and catabolic purposes.

Also included in proper or optimal nutrition is the effective removal of metabolic debris. Nutritional impairment may be a consequence of interference with proper processing at any point. As parenchymal cells exist in an internal milieu of interstitial fluids, cellular nutrition is affected greatly by fibrotic changes or hyalinization of the matrix, edema, and other pathologic changes. Impaired cellular nutrition may result from one or more of several factors: 1. inadequate nutritional supply; 2. excessive nutritional supply; 3. impaired digestion; 4. incompetent absorption; 5. inefficient distribution as in circulatory impairments; 6. ineffective utilization such as may exist in hypoinsulinism or asphyxia or cer-

tain enzymatic defects; and 7. inordinate accumulation of metabolic debris.

Malnutrition includes excesses as well as deficiencies. Because health is relative and never absolute, the potentialities of an optimal nutritional status are still in the realm of the undiscovered. The endogenous factors in malnutrition are especially important in the aged and chronic invalid. Here feeding involves nourishing people with impairments and limitations of functional capacities. It is impossible to separate those changes due to aging per se and those resulting from the stresses to which living exposes one. To be sure the stresses and noxious experiences are unavoidable as we progress through life, but the result of the impact is highly individualized.

Thus nutrition involves several processes of ingestion, absorption, metabolism, nutrient transport, and utilization. Consider then the changes induced by the aging process as well as chronic invalidism:

A. FACTORS AFFECTING INGESTION. Loss of teeth interferes with proper mastication, and the inability to chew disturbs the individual sufficiently so that he will delete certain items from his diet. This applies chiefly to bulky substances such as fruits, vegetables, and meats. Ill-fitting dentures and jaw atrophy are major causes.

Lack of mastication can lead to constipation due to a lack of bulk and give rise to irritable bowel syndrome. In the elderly the role of habit in determining health is particularly significant. Habits have been acquired as the years progress to a point of sometime observing faddism, prejudice, or simple gustatory preference and self-indulgence. The diet may seem outrageous. However, it generally is not wise to insist upon abrupt or radical changes which can be physically upsetting and emotionally disturbing. Many small changes may be accepted by the patient.

Economic factors often are significant in a selection of diet by the elderly, and the ease with which food can be consumed and digested is important to them. Anorexia is common when morale is low because of long, distressing illness and disablement. In such cases small, frequent feedings are

often better tolerated than large meals. The appetite is poor and one of the most important considerations is that the food be "easy to eat." An individual may refuse a delicacy but eat a simple dish because the latter requires a minimal amount of effort for consumption.

B. FACTORS AFFECTING DIGESTION AND ABSORPTION. Secretion of digestive enzymes and hydrochloric acid have been shown repeatedly to be diminished in the older aged group. The actual volume of the alimentary secretions is lessened, and often there is considerable interference with digestion because of hepatic dysfunction, cholecystitis, cardiac and other diseases. Thus, as with the chronic invalid, it is desirable to prescribe larger quantities of specific food substances and certain vitamins and minerals.

Muscular atrophy and hypotonicity of both the small bowel and colon often leads to constipation, but perhaps the greatest cause is the lack of ingestion of bulk foods as well as the ingestion of a significant amount of fluid.

C. METABOLIC FACTORS AFFECTING NUTRITION IN THE CONVALESCING INDIVIDUAL AND THE AGED. There is a gradual decrease in homeostatic efficiency. As an example of this, it is noted often that there is a diabetic-like curve in the glucose tolerance test. Too rapid administration of glucose is not well tolerated, and conversely there is an intolerance to a lowered blood sugar whether the result of starvation or hyperinsulinism.

Thus, after the introduction of insulin in the management of diabetes, it was observed in the older diabetic patient that when he was precisely controlled at normal levels there developed circulatory difficulties. It has been shown that a relatively low blood sugar may induce episodes of acute angina pectoris. Glucose is the major source of cardiac energy, and the necessity of maintaining a relative hyperglycemia in congestive cardiac failure in the older age group is frequently forgotten. Therefore, the administration of small quantities of

readily absorbed carbohydrates at frequent intervals may have a significant influence in the recovery rate of a patient.

Any so-called essential nutrients are important for their synergistic action and their derivation. For example: pyruvate is involved in glucose utilization; cocarboxylase is essential in the normal utilization of pyruvate. The former is derived from thiamin and the importance of adequate thiamin administration or thiamin deficiency is apparent.

This is only one of many reactions that are important in maintaining the so-called homeostatic efficiency mentioned previously. The ill consequences of hypoproteinemia causing edema, poor wound healing, retardation of bone repair, decreased resistance to infection, and slowing of the processes of blood formation are much more marked in the chronically ill and older individuals. Consequently, the maintenance of plasma protein is a necessity. There is only one notable exception to the constancy of the physiological constant in the advancing age group; that is the decline in the rate of metabolism.

Habits of eating often persist though the energy expenditure is reduced, so it is not surprising that obesity is a common problem during the middle years. Because thyroid activity is related to cholesterol metabolism the problem of minor hypothyroidism and its association in the development of atherosclerosis is being studied. Aging brings about changes in mineral and electrolytic metabolism which affects nutrition. Demineralization of bone with osteoporosis is a major problem in the older group, and can cause disablement. In addition to a more liberal supply of calcium and vitamin D, it is important to have adequate protein intake and a positive nitrogen balance, normal glycogen metabolism, parathyroid hormones, and the anabolic effects of the estrogens and androgens which have considerable therapeutic value in such condition.

D. FACTORS AFFECTING TRANSPORT. Ingested and digested nutrients are useless unless actually delivered to the tissue cells requiring them. This can be affected

by impairment of the circulation. Cardiac inefficiency reduces the supply of oxygen to the tissue cells and interferes with removal of metabolic debris. Hypertensive arterial disease interferes with nutrition of tissue cells since through the obstruction of the arteriolar constriction circulation is impaired. Capillary stasis creates local impairment of oxygen supply. The greater the arteriolar constriction the poorer the capillary circulation and the higher the arterial tension. It is essential to remember that the correction of defects in transporting nutrients to the cells and metabolic debris from the cells is a part of the problem of nutrition.

It is not within the scope of this paper to discuss in detail the role of diet therapy in specific diseases and disorders. However, there exist few medical disorders in which nutrition and diet therapy do not play a significant role, unless one is dealing with specific vitamin deficiency or iron deficiency anemia.

A discussion of this nature would not be complete without a few words regarding the psychology of appetite and hunger. Hunger is generally recognized by two components: the first is a generalized weakness which may be related to sensory nerve impulses from the alimentary canal. It has been demonstrated that in some instances it is accompanied by a lowered blood sugar. The second component is a more definite perception in the epigastric region consisting of brief, intermittent sensations of tension and pressure. These hunger pangs usually are associated with appetite, but may be independent of it. The physiological basis for hunger contractions appears to be inherited with relatively little modification from the experiences of the individual. The mechanism of these contractions is not clearly understood, but they are not dependent upon the extrinsic motor nerves because they are evident even after these nerves are severed.

Appetite, while often accompanying hunger, may be present without it and one may want to continue eating after hunger has been satisfied. The components for appetite are principally psychological and are the result of past experiences of the in-

dividual. As man grows older his likes and dislikes grow more acute and the pattern of his diet is formed. It has been shown by sensory physiologists that appetite is linked also with taste and odors of foods. These points must be kept in mind during rehabilitation so that the patient's appetite may be encouraged by the right food in proper amounts, the attitude with which it is served, its appearance and the surroundings.

Therapy which has been successfully employed in the rehabilitation of persons with nutritive failure shows that: 1. Conditions causing excessive requirements for nutrients should be removed or relieved if possible. 2. Symptomatic treatment and treatment for coexisting disease must be administered. 3. The patient should eat a diet which supplies from three to four thousand calories containing 120 to 150 Gm. protein and liberal amounts of mineral and vitamins. 4. Include in the diet for deficiency states or subdeficient individuals therapeutic substances such as yeast, liver extract, and all vitamins, either orally or parenterally, in sufficient amounts and for a long enough period to correct the deficiency.

The following principles are essential to good nutrition during periods of rehabilitation: 1. Moderation, particularly in the aged, for excess can constitute malnutrition as much as deficiency. 2. Liberal fluid intake. 3. Balance in the dietary. The physician must be aware of fixed habits which can predispose to deficiency states, especially those of proteins, iron, and calcium. 4. Individualization; variations in psychology, requirements of the individual, tolerances, and capacities for any given situation. 5. Gradual modification of dietary habits. Elderly patients do not tolerate abrupt changes and many patients will ignore rigid or unreasonable advice. 6. The recognition of intimate reciprocal relationships between nutrition and the chronic progressive disorders of late maturity. 7. Attention should be focused upon the necessities of the individual rather than upon his disease per se. If the psychic factors is ignored by the doctor, the patient will fail to obtain maximal results from dietary therapy.

DAPRISAL IN THE TREATMENT OF DYSMENORRHEA*

JOHN M. LEVINSON, M.D.**

Dysmenorrhea has been described as far back as the tenth century B. C. by the ancient Hindus¹. Since pain is a subjective phenomenon, the incidence of this entity is difficult to determine. In 1938 Davis² found among large groups of gynecological patients the incidence of dysmenorrhea varied from 8.8% to 47.4%; in schoolgirls and in university women, from 17% to 86%; in industrial workers, 80% to 93%; in shop assistants 34%; and in supposedly normal women, not classified as regards occupation, 31.2% to 84%.

Dysmenorrhea may be most conveniently divided into two groups. First, there are the cases of primary dysmenorrhea in which no organic lesion can be demonstrated. The second type is known as secondary dysmenorrhea, in which pain is caused by organic, usually primary, pelvic disease.

The present study was prompted by the successful use of a non-narcotic analgesic, a compound of d-amphetamine sulfate, 5 mgm.; amobarbital, ½ gr.; acetylsalicylic acid, 2½ gr.; and phenacetin, 2½ gr.*** In as much as psychogenic factors are frequent in this problem, a critical evaluation with double blind control studies was undertaken.

In the fall of 1956 the student nurses at the Delaware Hospital were contacted as a group. They were told of the successful use of a new drug for dysmenorrhea. It was stated that three compounds were to be made available for treatment of this problem. In actuality, the tested compounds were two in number, one a capsule of Daprisal, the other an identical capsule containing dextrose. (The misleading information of three compounds was mentioned to the group to deter efforts at comparing the

drugs between students.) Unlabeled bottles of the identical appearing capsules were numbered and placed with student representatives. The participants were instructed to continue or change the numbered bottles as desired with successive menstrual periods. It should be stressed that through this technique neither any of the participants nor the author knew who was receiving the Daprisal and who was receiving the placebo medication.

It was interesting that over 75% of the student nurses volunteered that they had some degree of dysmenorrhea. Any student who wished, joined in the study and filled out a questionnaire to determine the type and severity of her symptoms, so that she might be placed in either a group having severe, or a group having moderate to mild dysmenorrhea. No attempt was made to exclude any student who had known pelvic pathology, and no examination of any type was performed. At the completion of a five month study period, 49 student questionnaires were found to be complete enough for tabulation. They covered 135 menstrual periods during which medication was used. This may seem to be a small number of tabulated menstrual periods for 49 girls during a five month study, but it was noted that the students as a group had frequent periods of amenorrhea, and sporadic periods of painless menstruation, during which no medication was needed. Medication was taken every three to four hours as needed only after dysmenorrhea had developed.

RESULTS

TABLE I:—Relief obtained in Moderate-Mild Dysmenorrhea Group

MEDICATION	RELIEF				TOTAL MENSTRUAL PERIODS
	Yes Cases	%	No Cases	%	
Placebo	27	55.10	22	44.90	49
Daprisal	35	85.37	6	14.63	41

* This study was conducted at The Delaware Hospital in 1956 and 1957 when the author was a resident in the Department of Obstetrics and Gynecology.

** Assistant, Department of Obstetrics and Gynecology, The Delaware Hospital, Inc.

*** DAPRISAL, a product of Smith, Kline and French Laboratories, Philadelphia, Pennsylvania.

TABLE II:—Relief Obtained in Severe Dysmenorrhea Group

MEDICATION	RELIEF				TOTAL MENSTRUAL PERIODS
	Yes Cases	%	No Cases	%	
Placebo	7	36.84	12	63.16	19
Daprisal	20	76.92	6	23.08	26

A Chi-square analysis was run on each of these tables. For Table I the computed Chi-square was 11.00 and for Table II it was 9.11. Both of these values are significant at $P < .01$. It is not difficult to see that a significant Chi-square indicates that Daprisal gave relief in a significantly higher percentage of cases than did the placebo in both the moderate-mild and severe groups.

TABLE III:—Relief Obtained with Daprisal and Placebo in Dysmenorrhea

MEDICATION	RELIEF				TOTAL MENSTRUAL PERIODS
	Yes Cases	%	No Cases	%	
Placebo	34	50.00	34	50.00	68
Daprisal	55	82.09	12	17.91	67

A Chi-square analysis for this table was again significant at $P < .01$, the computed value being 16.93.

Four patients taking Daprisal complained of side effects as follows:

Headache	2
Dry Mouth	3
Insomnia	1
Tachycardia	1

Three patients taking the placebo medi-

cation complained of the following:

Headache	2
Nausea	2
Vertigo	1

CONCLUSIONS

1. Daprisal a non-narcotic analgesic, has proved to give some relief in over 82% of menstrual periods in which dysmenorrhea is a complicating factor.
2. Placebo medication can be expected to give some relief in 50% of menstrual periods complicated by dysmenorrhea.
3. The above figures substantiate the strong psychic factors involved in this clinical syndrome.
4. Daprisal is a non-narcotic analgesic with minimal side effects that has proved of definite value in the empirical treatment of dysmenorrhea.

The author wishes to thank the student nurses and The Delaware Hospital School of Nursing, Wilmington, Delaware for their close cooperation in this project and to express his appreciation to Allston J. Morris, M.D., for his helpful suggestions in the preparation of this study.
The materials for this study were provided by the Research Division of Smith, Kline and French Laboratories, Philadelphia, Pennsylvania.

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MEDICAL COURT CASES



HOWARD NEWCOMB MORSE

Counsellor at Law

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THE FURNISHING OF ATTENDANCE AS A MEDICAL ACT

BROWN VS. MOORE

United States Court of Appeals for the Third Circuit 247 F. 2d 711

George R. Brown, a neurotic who believed he was suffering from cancer, was sent to the Mercer Sanitarium for the Treatment of Mental and Nervous Diseases in Mercer, Pennsylvania for rest by his Pittsburgh neuro-psychiatrist, Dr. H. B. Finkelhor. While at the sanitarium Brown was given two electro-shock treatments by Dr. John L. Kelly, a neuro-psychiatrist and "Medical Director" of the sanitarium. Following the second treatment Brown was permitted to become ambulatory. He went to the second floor of the main building of the sanitarium for massage. Afterwards, he fell down a flight of steps.

The noise of Brown's fall alarmed the sanitarium staff, who ran to help him. Brown was picked up and carried to a bed in an adjoining treatment room by at least four persons who improperly held him by his extremities, with his head hanging down. Dr. Kelly was not present at the time Brown was carried by the attendants. Brown complained that he had broken his neck in the fall and that he had suffered partial paralysis. He was removed to his own room and by this time his arms and legs were paralyzed. Dr. Kelly and another

doctor who was later called in from the town of Mercer to assist Dr. Kelly concluded that Brown had suffered no real or substantial injury and that his condition resulted simply from hysteria.

The widow and executrix of Brown sued the owner of the sanitarium for the benefit of herself and her three minor children. From an adverse judgment of the District Court of the United States for the Western District of Pennsylvania, the widow appealed. The United States Court of Appeals for the Third Circuit (which comprises Delaware, Pennsylvania, New Jersey and the Virgin Islands) reversed the judgment of the nisi prius court.

The Court stated: ". . . Dr. Kelly, the neuropsychiatrist and the individual 'in charge' of the Sanitarium, failed to exercise reasonable care and professional skill in permitting Brown to descend the flight of steps unattended following the electro-shock treatment, and. . . Brown fell down the steps because of this lack of care and of reasonable exercise of professional skill. . . Brown never received proper, adequate or

(Continued on page 194)

+ Editorials +

SALT RESTRICTION AND SUMMERTIME:

During the past few years the restriction of salt has been an important therapeutic measure used at one time or another by practically all physicians. Its use in congestive heart failure is now a standard method of treatment and has been proven effective beyond any reasonable doubt. Its indication in other conditions such as hypertension is not as clear cut but it is still used by many practitioners.

Any drug or procedure capable of doing good is also capable of causing damage. This is especially true in the case of salt restriction.

The low salt syndrome has been recognized as a clinical entity for approximately ten years. The clinical features of this condition include gastrointestinal symptoms such as loss of appetite, nausea and vomiting. Neurologic symptoms such as apathy, drowsiness, restlessness, confusions, and even convulsions and coma frequently occur. Muscular weakness and muscular cramps are common. The effect upon the circulatory system produces tachycardia and sometimes even shock. An important fact is that the patient loses his response to diuretics; this is manifested in a patient who has been having a satisfactory re-

sponse to diuretics suddenly ceasing to have this response.

It can be seen, therefore, that this can be a confusing condition and that many of the symptoms caused by a loss of sodium may imitate those due to congestive heart failure itself.

In normal individuals there is a tendency to lose salt during the hot summer months; this has been recognized for a long time and many industries have salt tablets handy by their water coolers. The cardiac patient is by no means immune to this loss of salt due to excessive sweating. This brings up a dangerous condition where, in the summer months, a cardiac patient who is on a restricted salt diet loses enough salt to get himself into a pathologic state of hyponatremia.

We must all, therefore, be careful during the summer months to reevaluate our patients whose salt intake is being restricted. We must be alert to the recognition of the early signs of salt loss and to keep in mind that the simple addition of salt to the diet during these hot days may prevent serious complications. Let us not be overly enthusiastic in the use of this most helpful therapeutic tool.

MEDICO-LEGAL COLUMN:

It is fitting that your State Medical Journal have a Medico-Legal Column in view of the increasing importance of this subject plus the fact that Delaware was one of the pioneers in the establishment of

an annual Medico-Legal Forum. We are fortunate in obtaining the services of an expert in this field to write the column. Its success can be predicted when one considers the tremendous popularity of the forums.

skillful medical treatment. In fact the treatment accorded Brown was such as probably would aggravate his condition. . . Dr. Kelly was guilty of malpractice. That malpractice involved 'medical' acts requiring professional skill as distinguished from 'administrative' act. . . In our opinion, the furnishing of attendance following electro-shock

therapy to a patient. . . is a medical act because the physician, the neuro-psychiatrist, who administered the shock must determine the extent and duration of the attendance required to safeguard the patient. . . Brown's death resulted from Dr. Kelly's improper and inadequate treatment."

POST-OPERATIVE CARE

LANE VS. CALVERT

Court of Appeals of Maryland 215 Md. 457, 138 A. 2d 902

Henry F. Lane brought suit, both as ancillary administrator of his deceased wife, and individually, against Dr. Read N. Calvert for alleged negligence in post-operative care of his wife. The claims were for pain and suffering of the decedent, for the prolongation of her hospitalization and for increased expense incident thereto. The Circuit Court of Montgomery County, Maryland entered judgment for the physician, and the plaintiff appealed.

The plaintiff's wife was suffering from carcinoma when she first consulted Dr. Calvert. It had then progressed to such a stage as to have been incurable, and she died as the result of it almost a year later. After Dr. Calvert performed an operation upon the patient, he used x-rays and made incisions for the purposes of locating and

draining accumulations of pus from the abdominal cavity. Dr. Calvert consulted with Dr. V. M. Iovine, who suggested that a lipiodol dye be injected in the fistulous area to locate and drain the pus accumulations. Dr. Iovine's suggestion was adopted, but the question was raised by the suit as to whether or not Dr. Calvert's failure to use this technique sooner was evidence of negligence on his part in the post-operative treatment of the patient.

The Court of Appeals of Maryland affirmed the judgment of the lower court, declaring: "Though it might be inferred that if Dr. Calvert had used lipiodol dye sooner, the patient would have fared better, we do not think. . . the defendant was guilty of negligence in failing to use it sooner and in seeking to locate and drain the pus pockets by other means."

THE VIROLOGICAL DIAGNOSTIC LABORATORY

Early in 1958 a group representing the Delaware State Medical Society visited a viral diagnostic laboratory of the U.S.P.H.S. at Bethesda, Maryland. Dr. John P. Utz, Chief of the Infectious Disease Service, met with them and some of his remarks were as follows:

VALUE

Dr. Utz stated that ever viral diagnostic laboratory of which he has knowledge has been working at capacity shortly after its inception, as physicians have learned of the value of the results it has produced. Most important of these has been the establishment that a given infection is or is not viral. Granted that no specific treatment for viral infections is available, he said, the knowledge that an infection is not bacterial eliminates the need for broad spectrum therapy, and permits both less expensive and more accurate treatment of the patient. Because this is so, he said, a charge to the patient for such work is definitely justified. Aside from the immediate value to the patient, Dr. Utz said that the profession benefits from a knowledge of the current virologic census, and from the virologic post mortem examinations that are within the capabilities of a diagnostic facility. Such a laboratory would also be capable of producing material for teaching purposes.

COST

Discussing cost, Dr. Utz said: "The difference between the virology of today and of a few years ago is the availability of commercially-produced media and equipment." Under these circumstances, he said, a virologist with one aide can provide diagnostic service for up to 1000 beds. The laboratory of the USPH uses tissue cells purchased commercially from Micro-Biologic Associates, Inc., 4846 Bethesda, Maryland. These cells are made from monkey kidney tissue, Hela uterine cancer cells and human embryo tissue fibroblasts. The cost is 33c per tube. An average of 4 tubes are used per patient. Dr.

Utz said that it is possible to produce Hela cells independently, but pointed out that this would take the full time of one Technician. He estimated the total cost of servicing one patient as \$3.00 to \$5.00, exclusive of the cost of space in which to work. The cost of materials alone would be approximately \$0.50 per test, or \$2.00 per patient.

Dr. Utz said that work with animals would be negligible. With the availability of commercially produced tissue cells, the only viral condition requiring live animals (mice) for testing purposes is lymphocytic choriomeningitis. All other viruses can be diagnosed from tissue culture.

Discussing personnel cost, Dr. Utz said that \$10,000 would secure an exceptionally able non-medical virologist. The aides in the Public Health Service Laboratory are high school graduates. While agreeing that opportunity for research is a necessary inducement to a virologist, Dr. Utz said that providing funds for this is not a responsibility of the laboratory. Grants for research are available, and it is the responsibility of the virologist to secure them.

EQUIPMENT

The minimum major expenditures for equipment were given by Dr. Utz as follows:

- 1 Microscope
- 1 Freezing Unit
- 1 Incubator (for cultures; an egg incubator is unnecessary if media are purchased).
- 1 Ordinary Centrifuge
- 1 Autoclave
- 1 Hood to insure sterile conditions. A small enclosed area, air-conditioned, will serve this purpose.

Expenses beyond these, he said, would be either optional or relatively minor.

TECHNIQUES

The viral laboratory at the National Institute of Allergy and Infectious Diseases is designed primarily for diagnostic work within the hos-

pital. The laboratory serves approximately 500 beds with particular emphasis upon the 52-bed ward used for patients with viral infections.

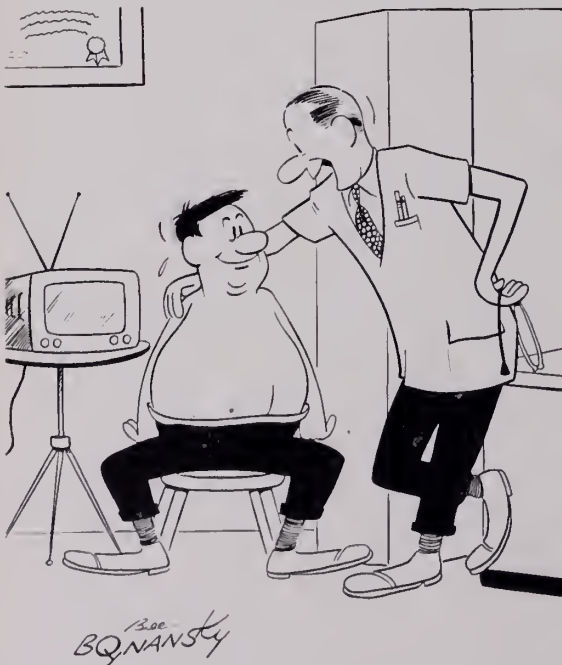
Each ward is equipped with small bottles of "keeper" solution. Nose, throat, and rectal swabs are taken on the ward and immersed in the "keeper" solution, which is then sent to the laboratory. The incoming vials are recorded by name and by number, and stored, if necessary, in a freezer. The keeper tubes are kept under refrigeration until inoculation. The culture tubes are inoculated within a sterile area with 1-10cc. of the "keeper" solution. They are then placed in an incubator for such time as is necessary. It is usually possible to state within 15 hours that an infection is or is not viral. Inspection for this purpose is done by placing the entire sealed culture tube under the microscope.

Positive identification of the type of virus will require from 24 hours to 5 days. To determine the type, the culture tubes are treated with

appropriate antisera and returned to the incubator. The antisera are prepared by the laboratory itself, which now uses solutions as old as four years. Antisera are stored by the laboratory in a freezing unit, which eliminates constant repurchasing of the media.

Microscopic inspections are accomplished within a few feet of the incubator, and conclusions recorded at the same table. Use of the swab and vial technique effects economy of space, and permits the entire procedure, from inoculation through identification, to take place within approximately 150 square feet. The laboratory does not use stool specimens.

Dr. Utz said that, in his opinion, a viral diagnostic laboratory is an important adjunct to medical practice, and will become increasingly necessary to the practice of medicine. He offered to come to Wilmington to discuss the establishment of a laboratory with either the Committee or the membership of the Society in open meeting.



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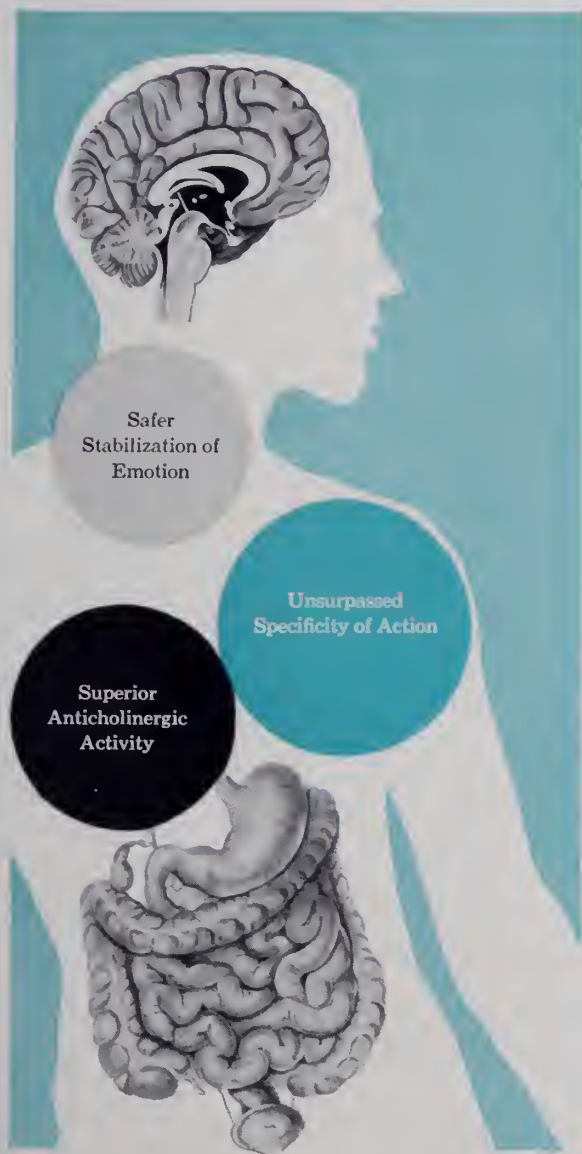
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*Finnerly, F. A. Jr.: New York State J. Med. 57:2967 (Sept. 15) 1957.

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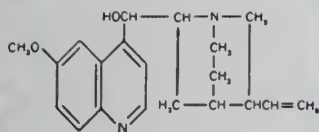
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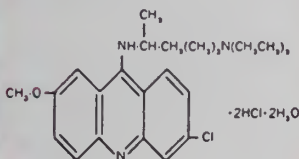
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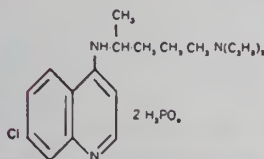
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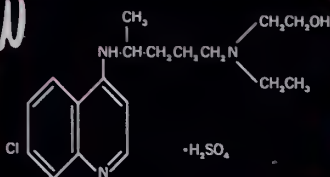
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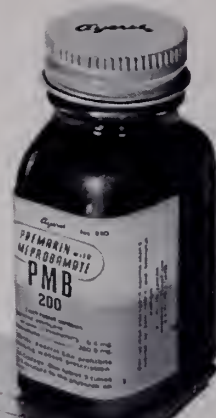
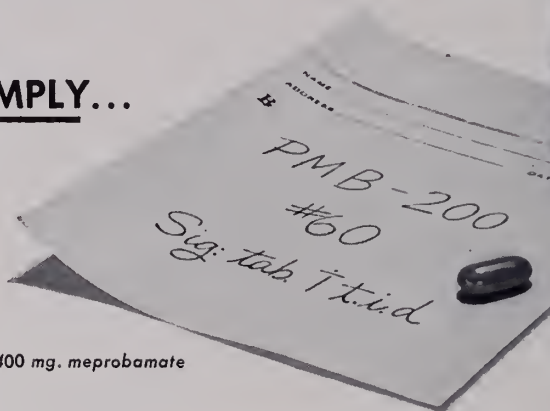
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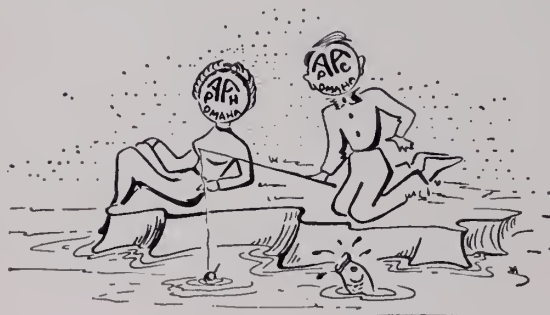
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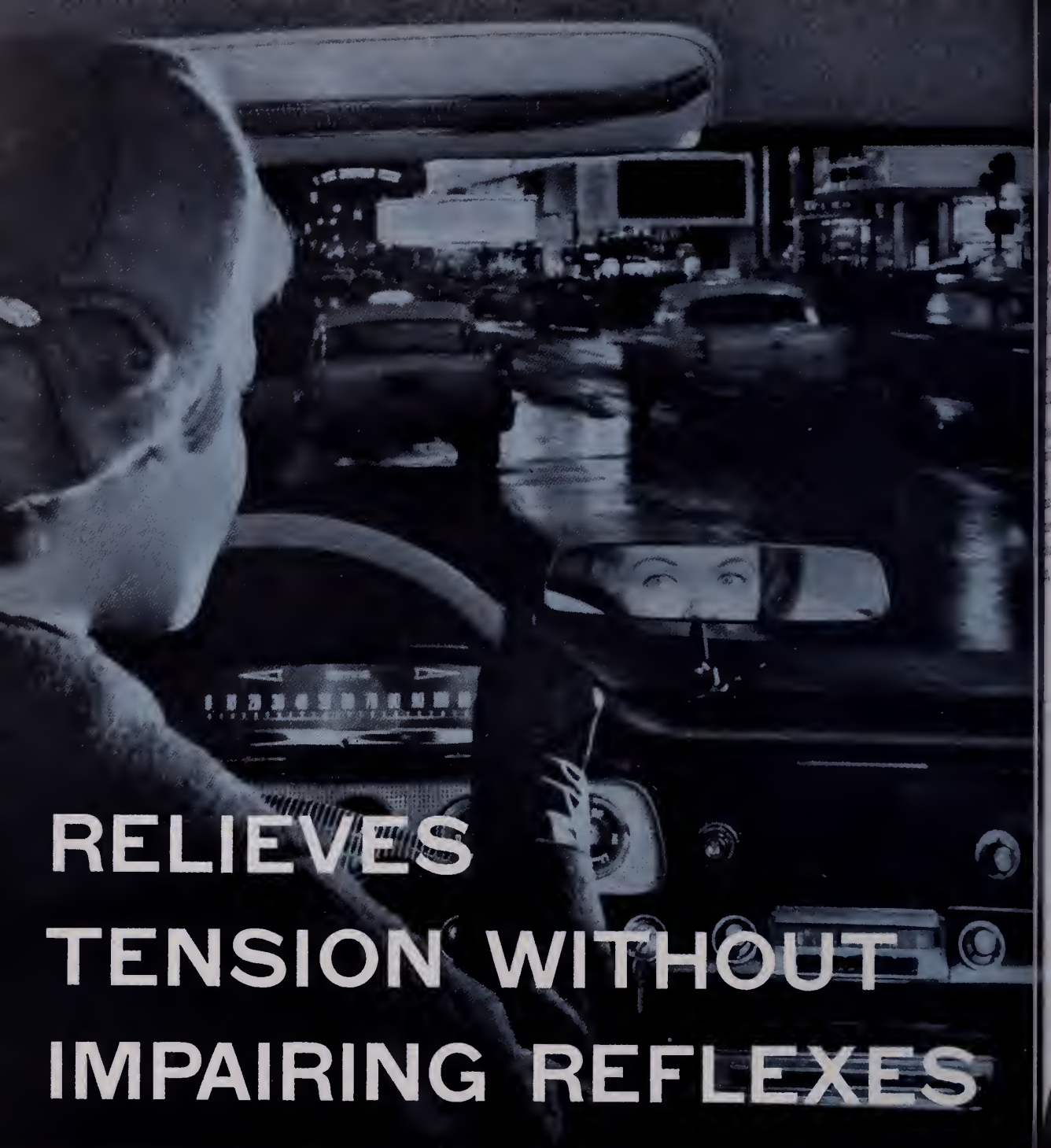
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*Marquis, D. G., Kelly, E. L.,
Miller, J. G., Gerard, R. W.
and Rapoport, A.:
Ann. New York Acad.
Sci. 67: 701, May 9, 1957.

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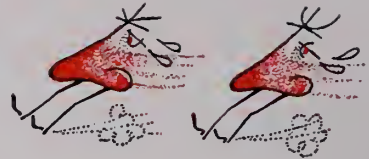
1. Thomas, J. W.: Ann. Allergy 16:128, 1958

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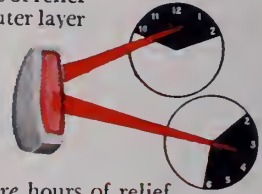
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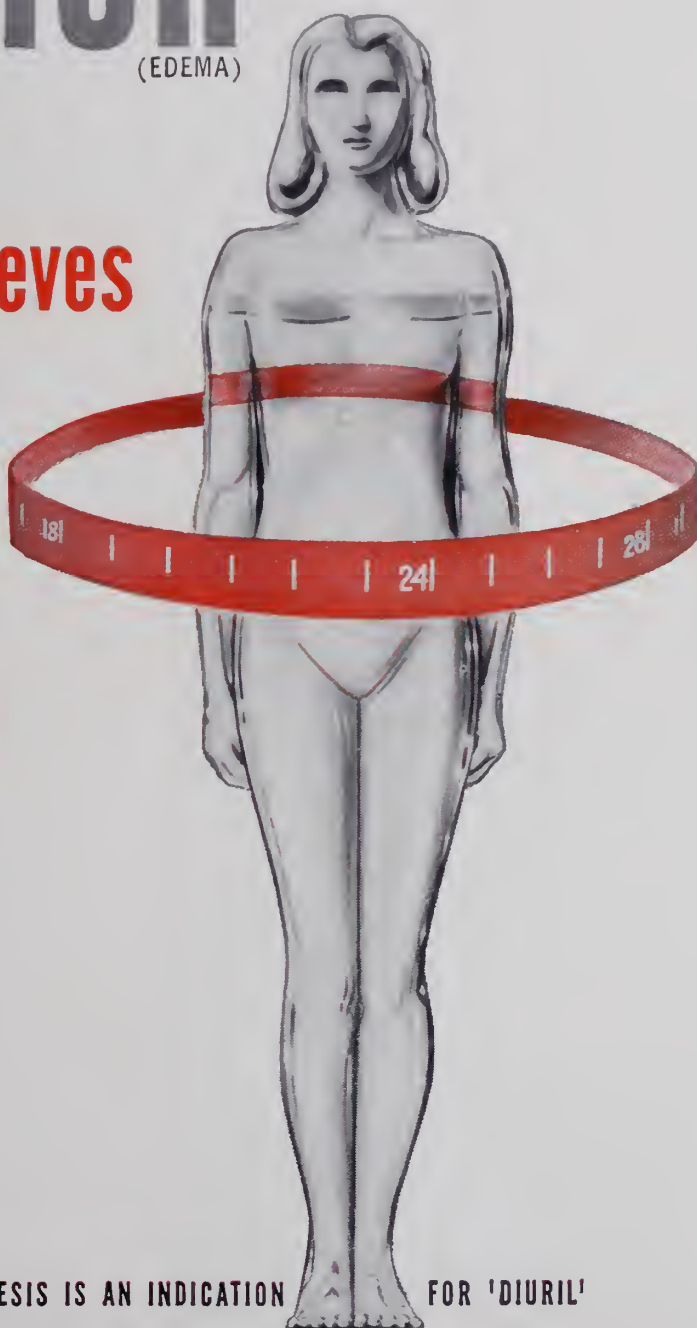
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1. Russek, H. I.: Postgrad. Med. 19:562 (June) 1956.

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Source—Hyman, M.: Some Aspects of Psychiatry in General Practice, GP 16:83 (Oct.) 1957.

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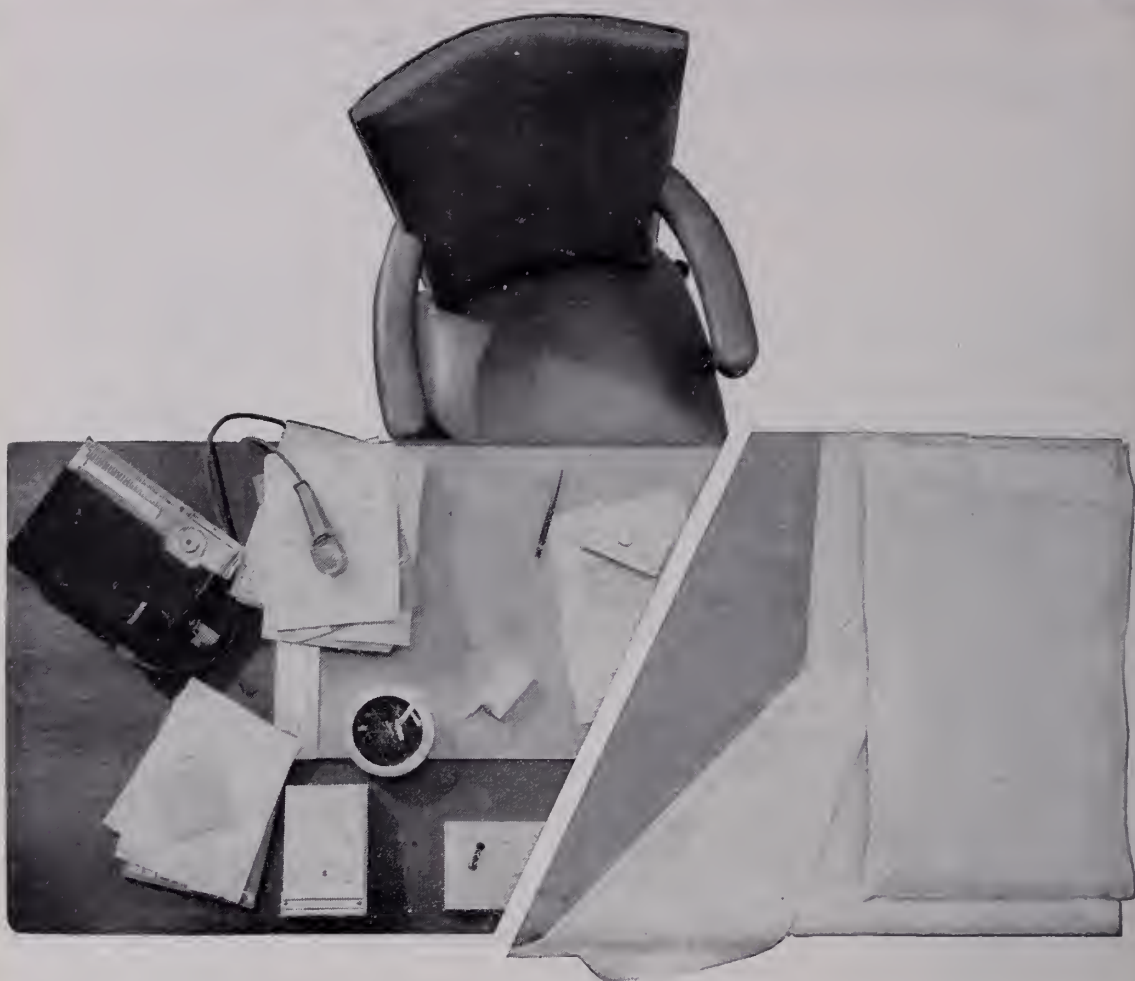
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Official Organ of the Medical Society of Delaware

INCORPORATED 1789

VOLUME 30

AUGUST, 1958

NUMBER 8

MENTAL HEALTH AND HOMICIDE INVESTIGATION

ANNUAL MEETING — OCTOBER 1 and 2

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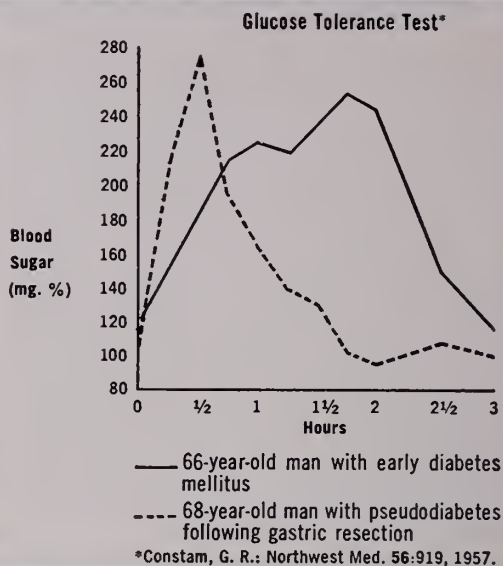
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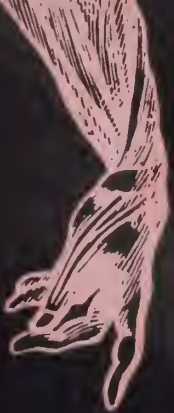


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Skeletal muscle spasm secondary to acute trauma	33	26	6	1	—
STUDY 2²		"pronounced"			
Herniated disc	39	25	13	—	1
Ligamentous strains	8	4	4	—	—
Tarticallis	3	3	—	—	—
Whiplash injury	3	2	1	—	—
Contusions, fractures, and muscle sareness due to accidents	5	3	2	—	—
STUDY 3⁵		"excellent"			
Herniated disc	8	6	2	—	—
Acute fibromyositis	8	8	—	—	—
Tarticallis	1	—	—	1	—
STUDY 4⁶		"significant"			
Pyramidal tract and acute myalgic disorders	30	27	—	2	1
TOTALS	138	104	28	4	2
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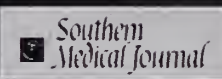
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- 9, April 1956. 179. Friedman, A. P.: The treatment of chronic headache with mepro- Use of tranquilizers in the treatment of headache. Am. Pract. & Digest Treat. 8:94, J.M.A. 163:1111, March 30, 1957. 182. Friedman, H. T. and Marmelzat, W. L.: Adverse meprobamate (Miltown) - a clinical study. Am. J. Psychiat. In press, 1957. 184. Gibbs, Relaxant effects of meprobamate in disabilities resulting from musculoskeletal and 153, July 1956. 186. Gillette, H. E.: The effect of meprobamate on cerebral palsy. ers and purpura hemorrhagica (Correspondence). J.A.M.A. 161:96, May 5, 1956. 188. An evaluation of meprobamate in the treatment of alcoholism. Ann. New York Acad. Sc. "Habit-forming" individuals (Queries and Minor Notes). J.A.M.A. 163:515, Feb. 9, e. Ohio M. J. 52:1306, Dec. 1956. 192. Hollister, L. E., Elkins, H., Hiler, E. C. ad. Sc. 67:789, May 9, 1957. 193. Hollister, L. E., Stannard, A. N. and Drake, C. F.: 194. Holoubek, J. E., Thomas, O. 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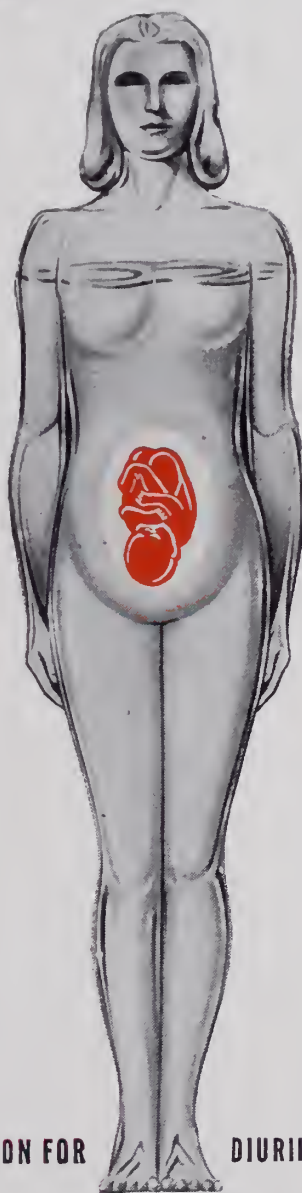
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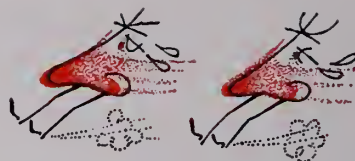


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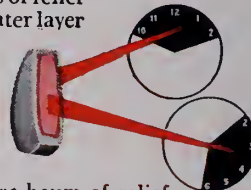
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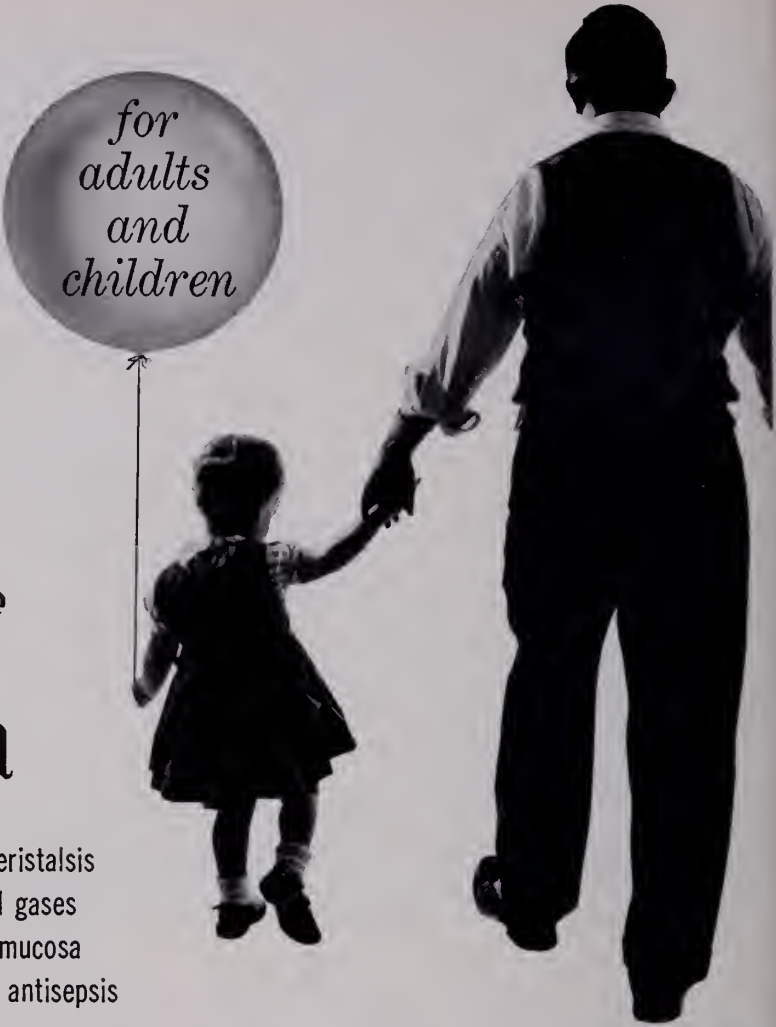
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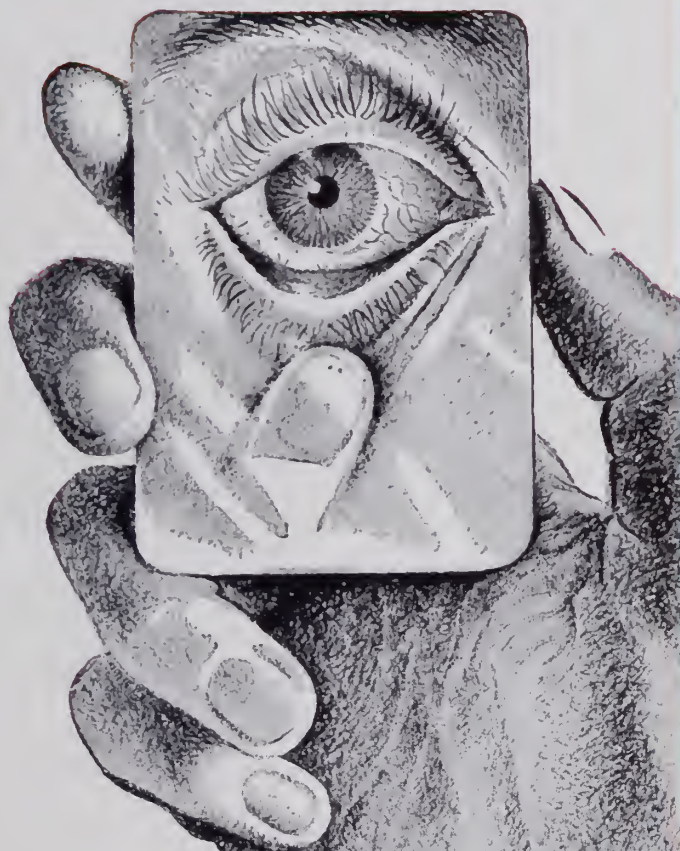


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MENTAL HEALTH IN RELATION TO HOMICIDE INVESTIGATION

M. A. TARUMIANZ, M.D.*

Introduction. The will to exist is fundamental in the life of an organism. In the most highly developed organism known to science—the human being—the will to live is essential to the preservation of the individual. The destruction of an individual is a threat to the well-being of society. The words of the English poet, John Donne, are as applicable today as they were when he wrote them in the sixteenth century. “No man is an island, entire of itself; every man is a piece of the continent, a part of the main; . . . any man’s death diminishes me, because I am involved in mankind; and therefore never send to know for whom the bell tolls; it tolls for thee.”

From the earliest period of recorded history the taking of human life has been regarded as a crime. “Thou shalt not kill” is the Sixth Commandment. The ancient Hebrews were nomads who suffered great loss of life from natural causes. Death diminished the tribal strength and if an individual was slain, his tribe must be compensated for his loss. The slayer was the logical source of recompense. Among primitive peoples not only must the surviving kinsmen receive compensation, but the spirit of the dead member also must have atonement for being deprived of life.¹ If payment was not made, relatives of the slain could kill the slayer. Homicide investigation has its roots in the tribal custom of primitive peoples. For an excellent discussion of the historical development of laws and procedures regarding adjudication

of homicide cases I commend to you Judge John Biggs’ book, “The Guilty Mind.”

Societal groups, beginning with primitive tribes and advancing to modern states and nations, have rationalized the taking of human life under the defense of protecting the total group from destruction. Thus has the execution of felons been justified, and from this concept has come the idea of collective protection symbolized by war. Fortunately, people are beginning to question the effectiveness of the taking of one life for another. Studies of human behavior have shown that the law of retaliation—referred to in legal language as “*lex talionis*”, the idea of “an eye for an eye and a tooth for a tooth,” has not been effective in deterring homicide.

Psychiatry In Regard to Execution. In March of this year the State of Delaware became the seventh state in the United States to abandon capital punishment.² In the hearings before the Delaware General Assembly on Senate Bill #299, a review of the legal executions in the State from 1902 through 1946, when the last execution was performed, revealed that two of the persons executed may have had less than normal mentality. The death sentence of a 30 year old white male, convicted of murder in 1910, was commuted to life imprisonment. He later was declared mentally ill and in 1914 was transferred to the Delaware State Hospital.

In speaking before the Committee on Judiciary of the New Jersey Assembly at

*State Psychiatrist for the State of Delaware

a hearing on June 5, 1958, regarding two bills of the New Jersey Assembly to substitute life imprisonment for capital punishment, Herbert L. Cobin, the President of the Prisoners Aid Society of Delaware and Former Chief Deputy Attorney General of Delaware, commented that 25 persons have been executed in Delaware since 1902; 19 for murder, six for rape. Fourteen of the executed were between the ages of 20-29 years, nine were between 30-39 years, one man was 44 years old and one female 52 years old.

All of these persons were in the unskilled laboring class and had limited education. Some could not read or write. Some were able to write only their names. Seven were Caucasians, including one woman; twelve were Negroes. Only six were born in Delaware. Three maintained their innocence throughout the trials, two protesting the accusation of guilt from the scaffold. In three cases the Court, in passing sentence, ignored a jury's recommendation for mercy. Of the 25 persons executed during the period for which statistics were readily available, the conviction for which they were executed was the first conviction for more than one half.³

From 1904 to 1954 nine other persons were received at the New Castle County Correctional Institution under death sentence. Of this group six were males convicted of murder. The mentally ill convicted prisoner referred to above was in this latter group. The first of this group, a colored 29 year old man, was convicted in 1904 and pardoned in 1905. In 1911 the death sentences of two 15 year old Negro boys were commuted to life imprisonment. One died in prison the same year, the other was pardoned in 1924. One 31 year old Negro male was sentenced to death in 1936. His death sentence was commuted to life imprisonment in 1937. In 1945 his sentence was again changed to 20 years. In 1946 he was paroled. A 21 year old Negro male, sentenced in 1950, was re-tried and sentenced to life imprisonment in 1952. The sentence of a 26 year old Negro male was commuted to life in 1955.⁴

It was Mr. Cobin's opinion, based on his talks with members of the General As-

sembly, both in the Senate and the House of Representatives, that "the foremost consideration in the passage of the Bill was that they were convinced by the facts shown that the death penalty does not act as a deterrent to crime or is of such slight deterrence that its use is outweighed by other considerations." Some of the legislators were convinced "that the public should not be a party to the taking of a human life." Other legislators considered important "the obvious fact that capital punishment was applied mostly to the poor, the ignorant, the unfortunate without resources and is applied unequally." Many of the legislators "were more impressed with the facts showing that innocent persons have been executed." Other considerations which were involved in the final decision of the legislators to substitute life imprisonment for capital punishment were: (1) the fact that capital punishment "is recognized as being solely a retributive and punitive action in strong contradiction to the present day concept of rehabilitation and treatment of the offender," (2) persons committing capital offenses are usually "those suffering from mental disturbances or those impulsive in nature," (3) that these defendants are not a "criminal class," (4) that persons who have committed capital offenses often "make the best prisoners and the best parolees," (5) that an entire penal policy should not be based on the relatively few who can be classified as "depraved killers," (6) that there is no diminution of "protection for the police where capital punishment has been abolished," (7) that more convictions are obtained with fewer delays in places where capital punishment has been abolished, (8) that trials are less sensational if the life of the defendant is not at stake, (9) that juries, lawyers, and the court are not adversely affected if the penalty of death is eliminated from the trial, (10) that it is a questionable procedure to indict for a capital offense only to force a plea for a lesser offense, (11) that society is amply protected by the custody of the offender, (12) that retention of the death penalty "delays a more effective attack upon crime, crime prevention and the correction of the offender."

The Mind of a Murderer. From the foregoing material arise such questions as why would 15 year old boys commit murder? What causes men to kill? Are murderers "hardened criminals?" Since most people in the world do not kill others, homicide must be recognized as abnormal behavior. Criminals are persons who are unable to subjugate their personal desires for the good of society. They behave in a primitive or childlike manner, giving vent to intense emotion without inhibition or seeking immediate gains without regard to the effect of their actions on others. Such uninhibited action may proceed to the extent of killing any one who represents a deterrent to the accomplishment of the immediate end.

Murder may symbolize suicide. The urge to destroy oneself is turned toward another instead of inward. The suicide motive may be channeled into an aggressive act against another person. The newspapers frequently record instances of homicide in which the murderer, after killing his victim, attempts to commit suicide, and only through a stroke of fate such as the jamming of the gun is he saved to "answer" for his crime. In the Delaware State Hospital one of the mentally ill murder defendants is a woman who, in attempting to commit suicide, held her baby in her arms while she inhaled gas from the kitchen range. The baby was asphyxiated, but she was rescued.

The depressive psychotic person frequently does violence against some one who is almost a part of himself. After the homicide, as in the case of a mother killing her child, the wish for suicide may be lost, for in a sense the psychotic has already killed himself in destroying someone whom he may have seen almost as an *alter ego*.⁶

Examination of homicide cases has indicated a large proportion involving family members. In a study of 36 consecutive cases of homicide involving family members, including "common law" partners, whom Guttmacher examined in the Medical Office of the Supreme Bench of Baltimore,⁷ he found that five of the 36 cases had previously been admitted to psychiatric hospitals. Ten of the cases made genuine but unsuccessful suicide attempts immediately

after the slaying but did not attempt suicide later. Two who attempted suicide later, and succeeded, had not tried to commit suicide immediately after the crime. Desertion by the spouse for another appeared to be the most prominent motivating factor. Eight were adjudged not guilty by reason of insanity; two died before trial; one was held not guilty because of self defense.⁸

Homicide may be the result of brain disease. Altered brain function due to organic and structural changes in the brain is accompanied by altered psychological outlook, with observable deviations in outlook and behavior. A tendency toward homicidal activity is among the more serious behavior disturbances seen in epileptic patients. Impatience, anger or aggression may result from erratic irritability in an epileptic. This has been observed by many psychiatrists studying cases of homicide by epileptics.

In the case of schizophrenia, a frank mental illness, murder may serve as a definite defense against the ego disintegration characteristic of the disease.

Among the 24 mentally ill homicide patients in the present population at the Delaware State Hospital 14 (11 males, 3 females) have been given the diagnosis of "Schizophrenia, Paranoid Type." One of these is a white woman admitted in 1909 at age 34 years. Another, a white male, was admitted at age 37. The admission age range was 22-63 years, with only two over 45 years of age. Eleven of the group were between 22 and 37 years old when admitted. The median admission age is 36.4 years.

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 - (b) Convulsive Disorder with Psychosis (a 23-year-old white female admitted in 1950)
 - (c) Epidemic Encephalitis with Psychosis (a 12-year-old white male admitted in 1932)
 - (d) Meningoencephalitic Syphilis (a 37-year-old colored male admitted in 1956)
3. Mental Deficiency, moderate, with Psychotic Reaction (a 29-year-old colored male admitted in 1950).
 4. Personality Pattern Disturbance, Schizoid Personality (a 42-year-old white male admitted in 1954).
 5. Psychoneurotic Reaction, Depressive Reaction (a 32-year-old white male admitted in 1954).
 6. Transient Situational Personality Disturbance, Adult Situational Reaction (a 48-year-old white male admitted in 1942).

Homicide may be a concomitant of other crimes and may result from extreme fear; for example, the rapist, who murders his victim in an effort to escape detection. Other abnormal and chaotic sexual activity may eventually end in murder. In the literature is described the case of a youth who suddenly stabbed to death a girl sitting in front of him in a movie. An abnormal sex drive impelled him to torture women to death.⁹

William Heirens, the 17-year-old University of Chicago student who, in 1947, killed three persons, explained his murders as his efforts to escape detection on being discovered burglarizing. Investigation revealed that he had committed more than 500 robberies, his motive being to collect women's undergarments. This type of sexual aberration is known as fetishism. According to the youth's history, he began at the age of 9 to steal women's underclothes. At first he could produce sexual orgasm by wearing these garments. Later he received sexual stimulation from stealing the gar-

ments. After his arrest trunks of women's sheer underwear were found in his possession.¹⁰

James Colbert Smith, who wantonly shot and killed a taxicab driver in Philadelphia, Pennsylvania, on January 15, 1948, presented a combination of symptoms of mental illness. He was a homosexual, an alcoholic, and a habitual user of narcotic drugs.¹¹ On his discharge from the Naval Hospital in Philadelphia, to which he had been taken at his own request on December 27, 1945, the Chief of the Hospital Psychiatric Service had suggested the possibility of Epilepsy, Petit Mal or Psychomotor Equivalent.¹²

Mental Illness as a Defense in Homicide. As has already been indicated, homicide is aberrant behavior which frequently occurs as impulsive or explosive action. The psychiatrist recognizes that the more brutal and sadistic the murder, the greater may be the evidence of mental illness. The person who cannot control his impulses by the use of intellect, and therefore gives way to elemental instinctive reactions resulting in the destruction of human life, certainly is a psychiatric problem. He may not be a frank psychotic, however, or "insane"—to use the term still commonly used in legal practice. According to the legal definition of mental illness in terms of responsibility for one's criminal acts, a slayer acting on the basis of the wildest hallucinations may be considered sane.

As early as the reign of Edward I (1272-1307) insanity was recognized as a cause of crime. About the middle of the Fourteenth Century under the monarchy of Edward III, the theory of "absolute madness" was accepted as a complete defense in criminal cases. Proceeding from the theory of "absolute madness," the mind of the mentally ill person was compared to that of a wild beast. From this definition came the test of "raving madness". If a person's mind was like that of a wild beast, he could not know what he was doing nor could he know right from wrong.¹³ This idea of knowing right from wrong seems based on the assumption that one who is not mentally ill automatically knows right

from wrong. Sociology has contributed the knowledge that behavior acceptable in one culture is taboo in another. Also, the motive behind a particular act may determine, at least to some extent, whether an act is right or wrong.

One definition of murder is "killing with malice prepense," or as it is more commonly expressed, "with malice aforethought."¹⁴ This implies "a deliberate intention to commit the act." This concept underlies the idea of *mens rea*, a term meaning "guilty intent." The expression *mens rea* is derived from a Latin maxim which has been translated as: "An act does not make a man guilty unless his intentions be bad."¹⁵

The test of criminal responsibility on the basis of a knowledge of good or evil (later, right or wrong) seems to have been well established by the Sixteenth Century in England. There were several outstanding cases in the Nineteenth Century in the British Courts in which mental illness in the defendant was presented as the defense in homicide cases; for example, the Bellingham Case. In 1812 John Bellingham shot and killed Spencer Perceval, first lord of the treasury and chancellor of the exchequer. Although it was quite clear that Bellingham was mentally ill, the jury found him guilty, and he was promptly executed. The charge to the jury was to decide whether, at the time the act was committed, Bellingham "possessed a sufficient degree of understanding to distinguish good from evil, right from wrong, and whether murder was a crime not only against the law of God, but against the law of his country."¹⁶

The application of *mens rea* or the "guilty mind" theory to the accused became crystallized into a formula which has continued to be applied in homicide trials. For more than 100 years the McNaghten formula has operated in the courts of every state in this nation and in the courts of foreign countries. In 1843 Daniel McNaghten, a Scotsman, shot Edmund Drummond, the principal secretary of British Prime Minister Sir Robert Peel. McNaghten was charged with first-degree murder. McNaghten had been subject to delusions of per-

secution. He was hallucinated. Nine medical witnesses swore in open court that the defendant was clearly insane. A verdict of "not guilty, on the ground of insanity" was rendered.

The test of criminal responsibility as enunciated in the McNaghten trial has been the basis for determining the responsibility of the defendant in criminal acts. This formula has remained the sole test of responsibility in 29 states, while 14 or more states have added to it the concept of irresistible impulse or "temporary insanity."¹⁷

The history of the United States Courts contains numerous cases in which the application of the McNaghten Rules has resulted in extended and expensive court procedures. The trials of Louis Wolfe is a case in point. On December 30, 1943, in Brooklyn, New York, Wolfe, believing his wife unfaithful to him, killed her by beating her on the head with a shoe containing a heavy shoe-tree. He telephoned the police, who placed him under arrest. The attorney retained as his counsel had a long conference with him on the morning following the slaying. The attorney deduced from the defendant's behavior, his manner of speaking, and account of the killing that Wolfe was mentally abnormal. On the day after the conference the defendant handed to the lawyer a ninety page letter giving in detail the circumstances which led to the killing. It was the attorney's opinion, although a layman, that Wolfe was mentally ill according to any definition, legal or medical. The defendant refused permission for an application to be made for his commitment to the Kings County Hospital for observation. In withdrawing as the defendant's counsel, the attorney sent a written notice to the court of his position regarding the defendant. Eleven months later Wolfe was tried. He placed a defense that on the night of the crime he was insane. He made no claim of mental illness at the time of the trial. Although, according to reports of the case, Wolfe talked brilliantly and eloquently, he proclaimed himself the Messiah and made other statements which attested his abnormal mental condition. The New York statutes do not excuse from

criminal liability "an idiot, imbecile, lunatic, or insane person"—to use the words of the law—unless his "defect of reason" is such that he does not "know the act was wrong."¹⁸ According to the definition of criminal responsibility the defendant was found guilty of murder in the first degree.

Ten days after the verdict was given and before the prisoner was sentenced, his counsel applied to the court for an order committing Wolfe to Bellevue Hospital for examination to determine his mental status at that time. The order was granted and on December 8, 1944, nearly a year after the crime was committed, Wolfe was found to be "suffering from a mental disorder" which was diagnosed as "schizophrenia or dementia praecox of the paranoid type." He was committed to the Matteawan State Hospital after a court hearing, to be held there until such time as he would be able to return to the court for judgment on the conviction.¹⁹

Five years later the authorities at Matteawan State Hospital certified that Wolfe was able to appear in court and assist his defense. At the hearing on the motion to confirm the hospital report regarding Wolfe, the Assistant District Attorney, who was in charge of the proceedings, concluded that the prisoner's mental condition was abnormal. He, therefore, had the patient re-examined. There was sharp conflict in the opinion between the hospital psychiatrists and the psychiatrists for the court. On the basis of the opinion of the psychiatrists for the court, Wolfe was sentenced to die in the electric chair. Much litigation followed after the defendant moved to have the conviction set aside on the basis that he was mentally ill at the time of the trial six years previously. Finally the Assistant District Attorney, who still believed the prisoner mentally ill, recommended to the Governor of New York that the death sentence of Louis Wolfe be commuted to life imprisonment.²⁰ Of course Wolfe knew what he was doing when he killed his wife. Of course he knew that the act was wrong or he would not have called the police. "The defect of reason" under which Wolfe was laboring was the delusion that he was the Messiah and that it was his responsibility

to rid the world of evil. His delusion regarding his wife's unfaithfulness made him see her as part of the evil to be eliminated.

Justice Charles Doe in 1868 in New Hampshire, in dissenting from a decision of the Supreme Court of that state, wrote an opinion which in legal and psychiatric literature is now known as the New Hampshire Rule.²¹ Judge Doe's statement said in part, "the will does not join with the act, and there is no guilt, when the act is directed or performed by a defective or vitiated understanding . . . so far as a person acts under the influence of mental disease, he is not accountable . . . a product . . . of disease of the mind is not . . . a crime. . . ."²²

On July 1, 1954, Judge Bazelon of the Court of Appeals for the District of Columbia, in concurrence with Judges Edgerton and Washington, announced a decision which has become the newest advance in the efforts of courts to deal justly with the criminal who is mentally ill. Judge Bazelon stated, "The rule we now hold must be applied on the retrial of this case and in future cases is not unlike that followed by the New Hampshire Court since 1870. It is simply that an accused is not criminally responsible if his unlawful act was the product of mental disease or mental defect."²³

The Possible Contribution of the Psychiatrist to Homicide Investigation.

Psychiatry is a special branch of medicine which deals with deranged behavior and mental illness generally. The psychiatrist is equipped to make an objective scientific evaluation of the defendant's mental condition. He should be asked to give his findings on the mental condition of the patient. When he is asked to examine a defendant the court should furnish the psychiatrist an adequate history of the defendant. School records, probation reports, and any other pertinent material regarding the defendant should be made available to the examining physician. He should be granted adequate time to gather pertinent information regarding the defendant's social environment and past life, and to have a

psychological evaluation made. There should be time for such procedures as the electroencephalograph (EEG) and, if indicated, the pneumoencephalograph to determine whether there is evidence of brain damage in the defendant. The psychiatrist can best be used by the court to give evidence concerning the defendant's mental condition, including whether the prisoner is able to participate in his own defense, whether he should be treated in a mental hospital, or otherwise.

Several states have now made it possible by law for the court to have a psychiatric examination of all persons accused of murder. The New York State law regarding such cases directs that the court, upon its own motion or that of the district attorney or the defendant, may order a defendant to be examined to determine the question of his sanity instead of proceeding with the trial.²⁴ The Briggs Law of Massachusetts makes a similar provision.²⁵

The General Assembly of Delaware directed that "the Board (State Board of Trustees of the Delaware State Hospital at Farnhurst, Delaware) shall appoint a Superintendent of the State Hospital," and further directed, "The Superintendent shall be the director of the State Mental Hygiene Clinic and the State Psychiatrist and Criminologist."²⁶

When the Delaware Legislature created the Mental Hygiene Clinic in 1929 it included among the duties and powers of the Mental Hygiene Clinic the following stipulations: "The Clinic may observe, examine, study and treat the inmates of any institution supported in whole or in part by the State, or any county thereof, and may likewise observe, examine, study, and treat any person charged with any offense in, or subject to, any court within the State, when requested to do so by a judge or judges thereof."²⁶

Under these laws we have examined all persons indicted for homicide, if the Court or the Office of the Attorney General has so requested. Such defendants are examined before they are brought to trial. The State Psychiatrist in his report to the Attorney General states whether, in his opinion, the

defendant is able to stand trial and to give help to his attorney in his own defense. The New Hampshire Rule is used by the Delaware courts rather than the McNaghten Rule. It has been the custom of the courts to accept the opinion of the State Psychiatrist regarding the mental condition of a defendant.

Relatively few of the homicide defendants tested in the Mental Hygiene Clinic since its inception in 1929 have been mentally ill to the extent of being unable to stand trial. A majority of the pre-trial psychiatric examinations of homicide defendants have been of family members, including spouses and common-law relationships. Often the victim has been involved in a love affair with a spouse or paramour. Although most of the defendants have not been psychotic, with few exceptions they have been found to be suffering from personality disorganization of a serious nature. Use of alcohol chronically, frequently just before the slaying occurred, has been observed.

Some of the homicide defendants were shown to have extremely immature and/or inadequate personalities. One 23-year-old Negro male who killed a taxicab driver by stabbing him had shown personality disorganization seven years before. He had been examined at our clinic when he was arrested on charges of breaking and entering and on charges of malicious mischief. He had broken windows at a school, using an air rifle, and had broken 25 windows of a neighbor's house. Following these incidents he was committed to the State correctional school for boys.

Another immature personality, a 44-year-old Negro male, killed his common-law wife by beating her on the head with a baseball bat. Investigation of his past life showed commitment in the State correctional school for boys in 1919 on a charge of breaking and entering. His adult record with the police began in 1931. Since his first conviction in 1931 he had served two two-year jail sentences, one one-year jail sentence, four thirty-day sentences, one forty-day sentence, and two four-month sentences. Most of the charges against him were assault and battery, usually involving wom-

en. There was one instance of stabbing. In all there had been fourteen convictions for assault and battery. He was a man of average intelligence but one whose ego-strength and ego-integration were weak.

Mental Health In Regard to Homicide Investigation By the Police.

The law enforcement officers are frequently involved in homicide investigation. From the standpoint of mental health, something must be said about the mental health of the policemen involved in the case. It is the duty of the state and municipal police to investigate the killing itself, collecting all the facts about the manner in which the criminal act was done, discovering possible witnesses and clues, and noting information which may be pertinent to the case. They must apprehend the slayer. They should discover whether the accused person has any previous history of violent or other aberrant behavior, or whether he has been mentally ill in the past. The manner in which a homicide is perpetrated is important as it may give significant clues concerning the killer. Frequently the homicide victim has been the aggressor or has participated in a series of incidents which finally culminated in death. A study of 588 consecutive homicide cases which occurred between January 1, 1948 and December 31, 1952 and were investigated by the Homicide Squad of the Philadelphia Police Department, revealed that 150, or 26% of the deaths, were victim-precipitated. Martin Wolfgang, a member of the faculty of the University of Pennsylvania and a participant in the Homicide Squad which investigated the cases, suggested, "It seems highly desirable, in view of these findings, that the police thoroughly investigate every possibility of strong provocation by the male victim when he is slain by a female—particularly, as noted below, if the female is his wife, which is also a strong possibility."²⁷

In making the preliminary interrogation of a person suspected or accused of homicide, the police officers must be very careful not to suggest probable behavior or his own idea of how the homicide was committed. The accused or suspected person

should be permitted to state spontaneously whatever he knows of the killing. In recording the defendant's statements the officer should put down the exact words of the defendant, not the police officer's interpretation or edited version of the defendant's words. This is particularly important in the preparation of a statement for the defendant to sign in which he asserts or denies guilt regarding the homicide charge. The necessity for objectivity on the part of the police officer and the desirability of his reporting factual data can not be too strongly stressed. One writer commented that the more confidence the investigator can instill in the recipient during an investigation, and the more he can put the defendant at ease, the more likely will the defendant tell the truth.²⁸

The investigator's own biases and misconceptions should not be involved in the investigation nor should they color the homicide account. If the officer feels that "cracking the case" may lead to promotion for him, or that failure to do so may discredit him, it may be difficult for him to be objective. The police officers should have well-integrated personalities themselves. An emotionally immature police officer may give vent to sadistic behavior in regard to the defendant or inhibit the defendant through thoughtless, threatening actions. To insure the employment of persons as policemen who are free from serious personality problems the State Psychiatrist of Delaware is requested by the State and City of Wilmington authorities to examine all police applicants as well as applicants of Fire Companies, since the latter at times assist the police officers.

Usually the investigating police officer is anxious to establish a motive for the killing. It may be difficult for a murderer to state his motive for the criminal act. Any significant act has many determinants, and only those reasons which are acceptable to one's conscience are admitted to awareness. An act may be motivated by reasons quite different from those an individual believes to be true. Commenting on the usual practice in legal proceedings of seeking the intent of the criminal in committing the act, Karpman reminded his readers, "Psychiatrists

look upon intent merely as the surface expression of underlying motives."²⁹

The Attitude of the Public In Homicide Investigation.

In discussing mental health in relation to homicide investigation, we must consider the effect of the public on homicide investigation. A murder, particularly if the killer has not been apprehended, is a threat to the community in which the incident occurred and to more distant communities to which the killer may flee in this day of rapid transportation. The public may become so inflamed, however, that proper investigation of the case is severely hampered. A murder which is committed in a bizarre or brutal manner, or one in which a child is the victim, seems to bring from the public a demand for atonement by blood. The old concept of *lex talionis* runs rampant. Law enforcement officers, court officials, juries, and psychiatrists as well, must proceed unemotionally and justly to evaluate the deed and the doer. All the facts must be set forth and used for protection of the defendant as well as of society. The idea of retribution must not be the motivating force in the proceeding. Lawrence Freedman, Associate Clinical Professor in the Yale Medical School Department of Psychiatry and Chairman of the Yale Study Unit in Psychiatry and Law, made the comment, "It takes no expert to know that a reservoir of homicidal aggression resides in the mass of men which can be trapped whenever it is attached to a suitable public symbol."³⁰ George W. Wickersham, who was Chairman of the Wickersham Committee to Investigate Crime and also at one time Attorney General of the United States, stated in one of his reports "that the attitude of society in respect to the criminal was on occasion as lawless as that manifested by the criminal toward society."³¹ The public "desire for extreme criminal sanctions" is based somewhat on subconscious feelings of guilt in themselves.

Society makes no real gains through capital punishment. In a sense, the demand for the extreme penalty is merely public self-gratification. The members of a society express their need for a re-enforce-

ment of their own restrictive mechanisms when they seek to make examples of others. The death sentence for any act of crime is a primitive reaction on the part of the people who establish such a law. The commandment "Thou shalt not kill" is not abrogated through statutes passed by lawmakers and written into their codes.

CONCLUSION

The sanctity of human life makes homicide a serious problem in society. As tensions mount on the national and international scenes, individuals are affected. Deep-seated personality problems may be triggered into aggressive action in personal relationships. All forces must be mobilized to help individuals become better integrated, and to find ways of controlling their aggressive impulses and directing them into socially acceptable channels.

In spite of the best efforts of individuals and groups, however, there probably will continue to be cases of homicide. When these occur, the defendants should be psychiatrically examined before they are tried. The psychiatrist should be asked to present his report as an expert witness competent to give testimony concerning the mental condition of the defendant. He should neither be expected to fit his opinion into the legal definition of mental illness nor be required to participate in determining the verdict regarding the homicide defendant. In the investigation of homicide we must control our emotions and adhere to the principles of humanity. Our job in this world is to create, construct, revamp, and rehabilitate; it is not our job to destroy.

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THE IRRESISTIBLE IMPULSE IN CRIMINAL RESPONSIBILITY

A PSYCHIATRIC-LEGAL PROBLEM

HARRY S. HOWARD, M.D.*

The use of "irresistible impulse" as a defense in determining criminal responsibility is not generally accepted. However in Delaware, as in a number of other states, the Superior Court has spoken of "Deprivation of will power to choose whether to do the act or to refrain from doing it." In Alabama the Court has spoken of the defendant being irresponsible if "by reason of mental disease he has lost his—free agency." Davidson quotes three kinds of irresistible impulse pleas thus: (1) as generated in insane persons—sudden explosive reactions, powered by some urge; (2) impulses of the compulsive neurotic—compulsive stealing, pyromania etc., and (3) characterological defects evidenced by sexual perversions (which are essentially compulsions). Davidson suggests that these do not include crimes committed in a fit of rage, pique or frustration.

These concepts are clear cut. They are intended to determine legal and full responsibility for crimes which might influence a jury in arriving at a verdict of "not guilty because of insanity."

This writer reports three cases which would not be included in the above concepts, which would not satisfy the McNaghten formula, yet which might create the impression of only "partial responsibility" and so assist the prosecuting attorney to arrive at a lesser charge, or the Court to arrive at a more realistic disposition.

CASE NO. 1

This patient is a Negro male, 51 years old and married, charged with having murdered a boarder in his home during an argument in which he felt he was about to

be attacked by his adversary (and later victim) with a weapon. He was quite certain that the man was reaching for a weapon, though no such weapon was found and no one could be produced to suggest that the victim ever had such a weapon.

The defendant had a good work record. He was a regular church attendant. He had had a few minor associations with legal authorities about alcoholic indulgence, though little came of them. He had been married about fourteen years. He had one child. There had been some drinking on the day of the crime, but neither participant was seriously intoxicated.

During the argument the victim had used a considerable amount of profanity of a threatening nature and had allegedly threatened to kill the defendant. He came down the stairway as if to carry out his threat and was shot by the defendant with a shotgun which the latter had borrowed and which had, apparently, been handy at that particular moment.

The examination revealed that he was mentally retarded at the mild level, with an I.Q. of 77. Projective tests revealed inadequacy and insecurity, though with fair ego-integration. There were suggestions of caution, lack of spontaneity and a tendency to avoid new or anxiety-arousing situations.

He was completely cooperative, quiet but loquacious, anxious and passive. There was nothing to suggest psychosis, neurosis or significant characterologic disturbance.

The examining psychiatrist concluded that though there could be no question of the fact that he could be held responsible for his acts, the mitigating concept of "irresistible impulse" could be taken into con-

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sideration and that he would not ordinarily, without unusual stress, commit an act of violence.

CASE No. 2

This patient was an 18-year-old male charged with the murder of his father under rather unusual circumstances. He stopped to visit his father and the latter's common-law wife and children while passing through the community in which they lived. Testimony revealed that the visit proceeded in a friendly fashion. There was no overt evidence of hostility. They talked of fishing, hunting, etc. until the moment of the shooting. The gun had not been brought to the scene of the crime, but was there "by accident." History showed that the father had deserted his wife (the defendant's mother) and left her to care for herself and several children. Deprivation, both physical and mental, resulted, but, until the moment of the crime the defendant apparently had repressed his hostility successfully.

The psychologic examination showed him to be in the dull normal range with an I.Q. of 80.

The psychologist concluded that there was evidence of chronic immaturity and social inadequacy; that he tended to restrict his social behavior to situations in which he felt secure and unthreatened; that there was an attempt at mastering feelings but that explosive and impulsive tendencies could be anticipated. Reality testing was well maintained.

The examining psychiatrist found him to be completely cooperative, but passive and timid. He gave the impression of being shy and uneducated. He discussed his own feelings regarding the situation in which he found himself, expressed regret and then discussed his relationship to his father and and latter's paramour. Indications were that he had a great deal of hostility which, up until the time of the shooting, he had repressed successfully. There was doubt regarding his masculinity, with a suggestion of identification with his mother.

The examining psychiatrist concluded that the act was the result of an irresistible

impulse probably motivated by the breaking through into consciousness of previously repressed material and serving, in addition, as a denial of the feelings of inadequacy while committing an act of aggression.

While he could legally be held responsible for his act, the mitigating circumstance of "irresistible impulse" needed consideration. He was not to be regarded as an individual who would ordinarily commit an act of violence.

CASE No. 3

The patient a white male, age 25 and married, was charged with the attempted murder of his wife and the murder of her paramour. The background history revealed a series of separations and tenuous reconciliations, the latter usually taking place during periods of his wife's difficulties with her paramour. This pattern had begun when the defendant and his wife were in high school before their marriage. The defendant was always ready to take her back, and she used this weakness to taunt him. He was from a broken family and identified himself with his children whose home, too, was periodically broken.

Psychologic examination showed him to be of average intelligence. Social awareness and judgment were adequate. He revealed difficulty in goal-directing his emotional energy within the frame of reality. Objectivity and reality demands were at times bypassed. He attempted to compensate for tremendous feelings of inferiority by aggressive outbursts. Otherwise he showed regression, avoidance and immobilization. He tended to disparage his concept of himself.

In the psychiatric examination he gave repeatedly the history of his own traumatic childhood and the rejecting attitudes of his wife. One noted particularly the defendant's passivism and dependence. Aggressiveness had been repressed and broke through into consciousness only in impulsive explosions.

The examining psychiatrist concluded that, though he could legally be held responsible for his acts and could stand trial,

his act should be considered an irresistible impulse or the breaking through of repressed unconscious material, and therefore a mitigating circumstance.

Three cases of murder are cited to illustrate the breaking through of repressed, unconscious material into consciousness with resulting failure of ordinary controlling ability and resultant acts of great destruction. This author concludes that these people are legally sane (unless one considers

the vague and unsatisfactory concept of "temporary insanity"), and that they legally must stand trial. However, the role of the psychiatrist in describing the personality structure of the defendant and the dynamic factors which went into producing this personality leads to the consideration of the concept of irresistible impulse as a mitigating factor, and can aid the prosecuting attorney in arriving at a proper charge and the Court in reaching a humane and useful disposition of the case.

BROMIDE INTOXICATION: SIMULATING OTHER ORGANIC BRAIN SYNDROMES

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A simple test such as a quantitative serum bromide determination in a patient showing symptoms of delirium or an organic brain syndrome, may enable the physician to arrive at a diagnosis promptly without employing unnecessary diagnostic procedures.

With increasing use of tranquilizing drugs prescribed for psychogenic disorders one is surprised to find that mental disturbances due to bromides are more frequent than is realized. In some psychiatric clinics 2% of all admissions have been found to be suffering from a bromide psychosis. Although psychoses resulting from bromides were frequent in the past, before the medical profession was adequately alerted to the changes which accrued to its prolonged administration, Noyes¹ pointed out that "50% of cases arise through the prescribing of bromides by physicians, the prescriptions, frequently being repeatedly refilled."

Many toxic states are brought about by self-medication through proprietary drugs containing bromide such as "Nervine." This disorder may simulate other organic brain syndromes. Since the psychosis may be short-lived, recognition of this toxic state can avoid transfer to a psychiatric hospital and the patient may be treated in a general hospital. For this reason, a case of bromide intoxication will be described in detail.

A 52-year-old weak, dehydrated white male was committed to the Delaware State Hospital on February 3, 1958 from a local hospital with the following statement on the commitment papers: "The patient has

been mentally confused, noisy and violent at times, has disorders of memory, delusions, partially destructive to clothing and furniture. He had to be restrained much of the time. All tests, including the cerebral spinal fluid examination, were negative. Complained of cold, cough and weakness. Question of an old encephalitis."

Both parents were living and well. The father was described as a kind, sympathetic man and it was said that the mother was devoted to her two sons, of which the patient was the older.

No information was available concerning pre-school and school age growth and development except that there were no serious illnesses suffered during childhood. He was reared in a rural community and the economic status of the family was always precarious. Therefore, the entire family had to work on the farm. Schooling was started at the average age but he left after the eighth grade to help with work on the farm. He married at age 21 and three children were born of this union. He was considered to be a hard, stable and dependable worker whose main concern was his work. He was an abstainer from alcohol.

From birth the patient had a bronchial cyst which was removed in 1950 at the Memorial Hospital, Wilmington, Delaware. He made an uneventful recovery. In 1954 he fell while at work, suffered a comminuted fracture, dislocation of the distal end of the left radius and intertrochanteric fracture of the left hip. Soon after he was taken to the Kent General Hospital, where a close reduction of the wrist fracture and an open reduction with pinning of the fractured left hip were performed. After the accident the

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patient became at times restless and tense and had multiple somatic complaints which consisted of vague pains and aches, occasional dizzy spells, "giddy feelings" and at times insomnia and anorexia. It was noted at the plant where he was employed that he was dropping in efficiency. Nevertheless, he continued to work steadily. He was diligent about his employment to the point that he never missed a day and it was the main interest of his life.

In January 1957 he was admitted to a local hospital with a history of upper respiratory infection, "high blood pressure," weakness and fainting spells which were described as "black-outs," with subsequent loss of recollection of the event. After study and examination, the physician made a diagnosis of Postural Hypotension. Doriden, one tablet PRN and Ephedrine, 3 '8 grains daily, was prescribed. The patient was soon discharged from the hospital.

Immediately after returning home he went to work. He became more quiet than usual; withdrawn, restless, insomnic, anorexic and highly preoccupied with all kinds of aches, pains and bizarre symptoms. The family doctor was consulted often but none of the prescribed medicine seemed to satisfy the patient or alleviate any of his discomfort. During May the patient was out of work. He complained continuously, was apathetic, uninterested in any activity and preoccupied with his job. The local practitioner prescribed Phenobarbital and Belladonna.

In June the patient returned to work and began to take Nervine, 1 teaspoonful, t.i.d. He stated that he began to feel better, more energetic, and that his preoccupation decreased. He worked until the beginning of January 1958 but continued to have previously described symptomatology to a lesser degree.

Four weeks prior to his admission to the Delaware State Hospital, the patient developed fever, cough, restlessness, irritability and pain in the neck region. After the family physician was consulted he was referred to a local hospital. Laboratory tests were within normal limits. During hospitalization the patient continued to be preoc-

cupied with his work, talked continually about it, and became restless. He soon became incoherent, was afraid of harm being done to him and was noisy and violent. He was placed in restraints and was given three different types of tranquilizers, which did not alleviate any of his symptoms. Because he was so disorganized, agitated and confused, he was transferred to the Delaware State Hospital on February 3, 1958.

On admission the patient was overtly confused, incoherent and disoriented in all three spheres. Intellectual functions were grossly impaired. He was restless, uncooperative, could not follow commands and was slow in his movements and responses. He talked in a monotonous tone of voice or mumbled. He was unaware of his surroundings and continued to show aggressive behavior as in the general hospital. He was restless and wandered about the ward.

Physical examination on admission revealed the patient to be pale, poorly nourished, dehydrated and older than the stated age. Blood pressure was 115/75, pulse 84, temperature 98.6. Heart sounds were of good quality, with no arrhythmia. Respiratory organs were normal to auscultation and percussion. The abdomen was soft. Liver and spleen were not palpable. There were no masses and no tenderness. Genitourinary organs were negative for pathology. Neurological examination revealed the following: cranial nerves were intact, including the fundoscopic examination. Cutaneous and deep sensibility could not be adequately tested because of the confusion of the patient. All deep tendon reflexes were present and active. No pathological reflexes could be elicited.

Laboratory findings revealed the following:

February 3, 1958

Urinalysis: Albumin 1+

Blood Wasserman non-reactive

Spinal fluid cells 2, protein 30, Gold curve flat

Wassermann non-reactive

Fasting blood sugar 103, Urea Nitrogen 34.5

Creatinine 1.50, RBC 4,600,000 Hgb. 15 WBC 6200,

EEG: Routine 16 lead EEG was slightly slow in all leads. Sleep was normal.

EKG: Tracing was within normal limits.

X-ray chest and skull: normal.

February 10, 1958

Urea Nitrogen 23.7

Creatinine 1.45

February 11, 1958

Bromide Level: 154 mg/%

February 17, 1958

Bromide Level: 4 mg/100 cc serum

March 3, 1958

Bromide Level: less than 100 mg/%
(Delaware Hospital).

Bromide Level: 41 mg%100, control
0 mg/100 (Delaware State Hospital)

March 6, 1958

Spinal fluid: protein 29, Bromides 5
mg/% cells 0, RBC 4,100,000, HBG
12.8 WBC 1800

Bromide Level: 20 mg/100 cc., Uri-
nalysis negative

March 27, 1958

G.I. Series, Lumbar Vertebrae:

Routine films showed normal filling of
the stomach and duodenum, at five hours
the stomach was empty and the head of
the meal had reached the descending
colon. Impression: Normal upper-gastro-
intestinal tract. Examination of the lum-
bar vertebrae showed no evidence of
pathology.

April 2, 1958

Barium enema showed normal colon

April 14, 1958

RBC 4,290,000, Hgb. 13.1, WBC 9,500

For the first 48 hours the clinical pic-
ture remained unchanged. However, on the
third day following admission he began to
show remarkable changes. He became alert,
partially oriented and was able to recall
events of the past 24 hours.

On the fifth day there was evidence of
greater modification. He was fully aware
of his surroundings, relaxed, well oriented

and could give a complete account of his ac-
tivities for the last four days. He began to
gain weight, was communicative and be-
gan to help on the ward.

By the end of February the patient be-
gan complaining on several occasions of
"dizzy spells." He was seen in consultation
by our neurologist on February 19, 1958.
The neurological examination revealed that
responses were slow to questioning and con-
centration impaired. There was no evi-
dence of increased intra-cranial pressure of
a localizing cerebral lesion. It was the neu-
rologist's feeling that this man's clinical
picture could be explained on a basis of an
organic mental syndrome associated with
chronic bromide intoxication. However, the
consultant felt that several other studies
should be done for complete investigation
of the "black-out" spells. All subsequent
studies, including G.I. Series, barium enema,
etc., failed to reveal any pathology. A re-
peat EEG on March 11, 1958 was within
normal limits.

By March 8, 1958, the bromide level had
dropped to 20 mg/100 cc. The patient con-
tinued to improve. On April 17, 1958 he
was discharged.

DISCUSSION

A case of bromide intoxication was pre-
sented in detail: Three days after his ad-
mission to this hospital, he began to show
evidence of improvement. A subsequent
quantitative serum bromide determination
was 154 mgm/%, confirming the clinical
diagnosis. Once the diagnosis was estab-
lished, the reason for the intake of the
bromides was thoroughly investigated.

This case was reported in order to re-
mind physicians that in all organic brain
syndromes a diagnosis of Bromide Intoxi-
cation should be considered and that toxic
states, as a result of bromidism, are not
uncommon.

OUTLINE OF PSYCHIATRIC EDUCATION AT DELAWARE STATE HOSPITAL

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The following is an attempt to consider the training facilities available at the Delaware State Hospital at Farnhurst for residents.

While it can be stated that psychiatrists never have agreed on a set of basic principles to be applied to the training of future specialists in their own field, certain principles have been recognized as generally valid. The following article is an attempt to evaluate existing facilities for training at the Delaware State Hospital in the light of accepted requirements.

The core of resident training in psychiatry is and probably always will be supervised contact between resident and patient. It should be extensive at times and intensive at others, and should be evaluated carefully and repeatedly by the resident and his counselors.

Patients have been our best teachers. The Delaware State Hospital (the only mental hospital in the state) admits psychotic and non-psychotic patients with the application of a minimum of selection, a fact which greatly facilitates the recognition of epidemiological, prognostic and diagnostic factors of mental illness.

Supervised day-by-day contact of the resident with a representative number of patients on admission services, and additional information regarding other groups of patients obtained in conferences, provide the resident with a sound knowledge of phenomenology, diagnostic acumen and a valuable sense of proportion in matters pertaining to his science. This knowledge often is less developed in residents trained in hospitals where patients are studied more intensively but in small numbers.

On the other hand, in another area and phase of training contact between patient and resident should be more prolonged, both in duration of individual sessions and total length of therapy. Such intensive contact makes the resident aware of the crucial importance of the patient—therapist relationship and, in conjunction with careful supervision, teaches him the principles and techniques of relationship management.

At this hospital intensive study of designated ward patients is limited by time and case loads of residents. Recently, psychotherapeutic night clinics have been instituted. Here the resident sees selected, previously hospitalized patients in weekly therapy sessions, and in weekly seminars, attended by residents and senior physicians, discusses therapy problems of transference, counter-transference and progress.

Partly because of the inability of psychiatrists to agree on basic principles of training, psychiatric centers for training tend to carry their stamp of individuality and to have their own hospital philosophy.

Teaching in this hospital attempts to be eclectic in the sense of non-adherence to any one doctrine. It attempts to impress residents with the fact that our knowledge in psychiatry is incomplete and inconclusive, and that we need to remain open-minded.

Most state hospitals, including our hospital, emphasize various somatic and social therapies. All common types of somatic therapy (except deep coma insulin) are used extensively, and the use of drugs is studied with great care.

It frequently is stated that the resident, as training progresses, should shift the em-

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phasis of study from purely descriptive aspects of cases to investigation of the dynamics involved. Psychodynamics, however, present psychiatry and psychiatric teaching with great and unsolved problems. Not only is the state of motivation theory uncertain and divided, and therefore doctrinaire, but also dynamic formulations attempted in all forms of mental illness frequently are speculative, oversimplified as to cause-effect relationship and lacking in efforts at integration of intrapsychic development with interpersonal contemporary factors.

Psychodynamic considerations and formulations are nevertheless important aspects of suitable case studies and should be encouraged in spite of their speculative nature.

Furthermore, emphasis on motivation will make the resident aware of the significance of teamwork in psychiatry—such as contributions made by social workers, psychologists, etc.

As in the case of most state hospitals not situated near universities, this hospital cannot readily assemble a large staff to teach psychiatry in formal lectures, nor would an extensive didactic program necessarily be advisable. However, most senior staff members hold faculty appointments at the University of Pennsylvania in Philadelphia. Lectures are given at regular intervals by the Clinical Director and Preceptor teaching is done by senior members of staff. Residents attend weekly psychotherapy seminars. In our "Academic Lecture Series" nationally known outstanding scientists, working in psychiatry and related fields, have talked on topics of special interest. Neurology, neuropathology, neuroanatomy and physiology and electroencephalography are taught in seminars by lecturers from medical schools in Philadelphia, Pennsylvania.

The psychiatrist now assumes responsibilities far beyond his original province of

the mental hospital and, for this reason, resident training should include out-patient work with adults and children, some in-patient work with children and work with community agencies, courts, etc. Residents at Delaware State Hospital get their experience in these lines at the Governor Bacon Health Center and at the Mental Hygiene Clinic.

Training also should be provided in public speaking, work in the psychiatric unit of a general hospital, consultation work with other hospitals and work with psychosomatic patients. It is agreed that research interests should be stimulated and that residents should be given opportunity to do research, a definite research altitude being the goal. Teamwork is desirable. Methodology, documentation and principles of research statistics should be taught. The Delaware State Hospital has a research department which is at present engaged in the following studies: (1) clinical effectiveness of psychopharmacological therapies, (2) implications of social and clinical aspects on course and outcome of schizophrenia, (3) cerebral bloodflow and Metabolism in psychiatric disorders. Some residents have received special training and participate in these projects.

In conclusion, something should be said about the way in which teaching should encourage the resident to develop his own individual life-style as a psychiatrist. Identifications with one or two teachers out of keeping with the resident's personality tendencies should be avoided. Therefore a large number of teachers is an advantage, and additional training during the residency period, such as personal analysis, etc., may be desirable. Opportunities for additional training should be offered.

The Delaware State Hospital, being close to Philadelphia, offers definite possibilities along these lines.

"NO ROOM AT THE INN"

FRIEDA R. HENDELES, M.D.*

The history of mental illness has been one of alternately changing accent, from the physical methods of treatment to the humane aspects of social reform and community responsibility. The earliest known references to mental disturbance were contained in the early Egyptian papyri but views as to family responsibility already were being expressed by the Greeks, notably in Plato's "Republic:" "If anyone is insane, let him not be seen openly in the city, but let the relatives of such a person watch over him at home in the best manner they know of, and if they are negligent, let them pay a fine."

In more recent times, family and community responsibility have become increasingly recognized among progressive and enlightened peoples. In this country the Veterans Administration and a number of State Hospitals are active in the development of family and community participation in the treatment and rehabilitation of the mentally sick person. What, then, is happening within our own state, and what repercussions are being felt within our own psychiatric hospital?

Once an emotionally sick person has left the family circle for more than six months, the gap gradually closes to exclude his return at a rate in direct proportion to the length of absence. By this time, relatives have reorganized their lives in such a way that the patient can no longer be accommodated, or the members of the family have lost interest and do not want to have him return. Or perhaps they have moved, or the remaining relatives have died. Thus the door of return has virtually been slammed in the face of the sufferer.

Often relatives, as well as the community at large, behave as though they were being imposed upon when attempts are made to

replace individuals who have been sick but are ready for rehabilitation to the status of useful and worthy citizens. They do not seem to understand that the returning patient is a calculated risk and, therefore, infinitely safer than the undiagnosed mentally disturbed persons who constitute a sizeable portion of our community.

Many patients, often middle-aged or elderly, who in their effectively functioning periods have been good citizens, are forced to live constricted and purposeless lives because the community which they have served so well is no longer tolerant of, or interested in, their welfare, their only fault having been that of emotional sickness—the unjustly condemned. This response differs little in essence from that of Biblical times when the leper and the pariah were cast out.

Repercussions of such treatment by the community are of a dual nature. Since the patient has nowhere to go and often is refused the opportunity to work, he comes to feel useless and rejected, with consequent feelings of utter futility which sometimes lead to relapse and chronic institutionalization with a state of apathy and automatism. This causes a steady increase in the resident hospital population, with consequent overcrowding. It results in reduction of beds available for treatment of acute conditions. Such delays prolong the course of the illness, depriving the family of its breadwinner or young children of their mother's care for a longer time than necessary. Modern drug therapies have not directly increased the number of "cures" but they have made it possible to reach patients more readily with rehabilitation methods, thus mobilizing and socializing a large number of people who otherwise might have slid down the path to eventual chronicity and prolonged hospitalization.

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It must be remembered, however, that institutional residence for even a few months requires gradual adjustment to the conditions of existence in this pressured, competitive world of the jet age. Rehabilitation within the hospital, although an essential factor, is not enough. Several transition stages *outside the hospital* have to be traversed in the successful crossing of the bridge to mental health and a full life. The ground for such transition stages is now in the process of preparation but for the success of such a program, each individual member of the community must contribute to the shared responsibility between the mental health services and the community. What, then, are the mental health services doing to further the cause of the mentally sick in this state and how can members of the community help in this vital task?

For the past two years the state hospital has maintained a program relating drug therapy to rehabilitation outside the hospital. It is under the regular supervision of a visiting nurse to the home or place of residence of the patient, thus enabling patients to step onto the bridge earlier than would otherwise have been possible. More recently, evening clinics have been opened at the hospital for continued treatment of patients who otherwise might have had to prolong their stay in the hospital.

Activities of the Mental Health Association include education of the community in mental health through films, lectures and the press; provision of seminars for the clergy of all denominations and provision of vocational training for patients with the trojan task of job placement and sometimes provision of living accommodation. The two latter are, perhaps, the most difficult tasks, requiring energetic, enthusiastic and consistent support from the community as a whole. Valuable and devoted work is being done by Volunteer Workers, and a plan is under construction for the most efficient utilization of their generous assistance.

The role of the family physician is an important one within the community and perhaps has not been appreciated to its fullest extent. One of the laudable features of the doctor-patient relationship is the in-

terest and counsel which the personal physician extends to the family of the mentally sick patient during the first few months of his hospitalization. However, in the later stages of the patient's illness when, perhaps, a year or more has passed, the strength of the relationship is no longer directed toward "keeping the chair warm" for the return of the sufferer—apathy has set in. A change of emphasis is urgently required on the part of both hospital authorities and family physicians. If this valuable solicitude could be transposed from the onset to the later stages of the patient's illness, much more could be accomplished toward the solution of one of the most urgent problems of mental health—that of keeping the door open for the patient's return to the community.

The responsibility of the community lies in accepting the patient and providing employment, a place of residence and social activities. Volunteer workers could give help in many ways. They could approach industrialists, whom they often know personally, for employment of patients. Such action helps create a sense of usefulness and responsibility not only in the patient but also in the community.

Through the medium of volunteers and civic organizations, the community can provide for a pressing need: a temporary haven for groups of patients who are ready to face everyday life again but who have nowhere to go because there is "no room at the inn." In California, volunteer workers have set up such havens and are running them with success. The required type of residence could be run simply and inexpensively for groups of eight or ten patients in a house assisted by a house-mother with visits from a community physician once weekly, the latter keeping contact with the psychiatric hospital for information and advice. Patients receiving special medication could be visited by the Home Care nurse from the hospital. Such groups could develop methods of self-management, some doing the cooking, some the housekeeping, while others go out to work to help maintain the home. Experiments such as this have been carried out successfully in Australia. A further development of this theme would be the formation

of a social club for these and other ex-patients within the area, thus unifying the provision of their needs.

A more ambitious program is that of the foster home placement of patients, another of the necessary arms of rehabilitation. This, however, requires an advanced stage of mental health education of the community as well as a large number of social workers with provision of generous finances by the community. Such programs already are in successful operation in many states.

Let us, the members of the community, therefore allow light into the places of darkness give understanding and help to those who, but for the grace of God, might be one of us.

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OBSERVATIONS OF CARDIAC PATIENTS SUBJECTED TO ELECTROCONVULSIVE THERAPY

DAVID J. REINHARDT III, M.D.*

The improvement which frequently occurs in mental states when treated by electroconvulsive therapy is well known. Those most familiar with this type of treatment also are aware that it is not without a certain mortality rate, especially in patients afflicted with cardiovascular disease. Because of the physician's respect for the results of electroconvulsive therapy, cardiac patients often are denied the benefits of this type of treatment. It is the purpose of the author, in conjunction with the psychiatric staff at the Delaware State Hospital, to follow closely a series of patients with cardiac disease through a course of electroconvulsive therapy (ECT) in an effort to derive a safer procedure whereby more elderly cardiac patients with mental illness can be helped.

Data is relatively sparse concerning mortality from ECT. Maclay,¹ with the help of statistics from the British Ministry of Health, reported 62 deaths in four and one half years in the British Isles. The number of patients treated during this period was not known. Alexander *et al*² reported five deaths in 5,325 patients who received 70,000 treatments at one mental hospital. This would indicate approximately one death per 1000 patients receiving a course of ECT. Kalinowski *et al*³ quote a fatality figure of 0.06% from a survey by Kolb and Vogel⁴ of 305 mental hospitals. This probably is closer to the accurate figure because of the scope of the study. However, if one were to limit the observations to those in the poor risk category because of cardiovascular disease, the incidence might well be in the realm of one death in 100 to 300 patients.

Should one reject for therapy the whole poor risk group for the sake of possibly preventing one catastrophe? The usual answer, without considering details would unequivocally be "Yes!" However, if we recognize the fact that the majority of patients in the age bracket susceptible to cardiovascular disease are suffering from involutional melancholia or reactive depression, and most cases have been productive members of the community, and that a return to this status frequently can be achieved by a course of ECT, then the answer must be that of taking a calculated risk and proceeding with therapy. In addition to this esoteric reasoning one must realize that such patients often are suicidal either by overt act or more passively by a refusal to eat, which leads to weight loss, malnutrition, starvation and eventual death. When these factors are considered in the individual case, the decision must be made as to whether the calculated risk or the ultimate outcome is the desired course.

PHYSIOLOGIC BACKGROUND

Any patient undergoing ECT goes through certain stages with respect to body physiology.⁵ Often there is a marked degree of anxiety and fear in anticipation of treatment. This is followed by a release of adrenal hormones, the most evident of which are epinephrine and norepinephrine, which cause a tachycardia of variable degree and arterial blood pressure elevation.

The tachycardia is further propagated by the increased tone of the autonomic nervous system. With treatment the electrical discharge is conducted through the cerebral hemispheres and the tonic convulsive phase

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appears with the immediate onset of apnea. The clonic phase follows, and only after this has terminated does respiration begin again. In the normal heart this period of anoxia may last for as long as 90 seconds and is rarely dangerous. As respiration begins, a strong vagal "storm" usually follows, with multiple cardiac effects. Especially affected are the rate, the site of impulse formation and atrioventricular conduction. At this stage the systolic blood pressure is considerably elevated and remains so for a period of 30 minutes to one hour. These effects slowly subside as the patient is reoxygenated and returns to the conscious state.

In the patient with severe cardiac disease this course of events is dangerous. At the termination of the convulsion, myocardial anoxia is intense, and the difference in tissue oxygen tension between healthy heart muscle and fibrotic, ischemic myocardium is acute. It is this difference, according to Beck⁶, which increases myocardial irritability at the junction zones and initiates ventricular extrasystoles. The added factor of acute cardiac dilatation during the convulsion adds to the irritability. The physiologic accentuated vagal influence at this point adds further arrhythmic potential to the already over-stressed heart. In addition to this, extensive coronary atherosclerosis injects myocardial ischemia which, if prolonged, may lead to subendocardial necrosis or infarction. Therefore, it is obvious that cardiac patients undergoing ETC are exposed to a form of excessive stress unimaginable to cardiologists of 30 years ago.

The following group of patients with heart disease were closely observed at the Delaware State Hospital while undergoing ECT. These cases illustrate many dangerous developments for which one must be alert, and also suggest therapeutic methods for increasing the safety of such patients.

METHODS AND MATERIALS

The patients chosen for this study were in extremis from the depression of their mental illness and all were suicidal or so negativistic as to necessitate in many instances feeding by nasogastric tube. They had not responded to chemotherapy which

had been tried. The diagnosis of cardiovascular disease to a degree of severity to warrant a "poor risk" classification was made by either a substantiated history of myocardial infarction, evidence of congestive heart failure, hypertension with advanced cardiac hypertrophy or a valvular lesion with chamber enlargement. In every instance an electrocardiogram was abnormal.

Eighteen patients were studied, nine male and nine female. The female age range was 48 to 84 years, with an average of 72.7 years. The male age range was 43 to 73 years and averaged 65.7 years. The total number of separate ECT given was 130. Eight patients were refused consideration because of advanced disease such as recent myocardial infarction, acute congestive failure or extreme irritability of the myocardium not responsive to quinidine. Three patients in the series were being maintained on digitalis.

The diagnostic categories are listed in Table I. Total diagnoses show more than 18 because several patients had more than one condition. Patients with pulmonary disease also had coronary artery disease. One female patient, classified as having coronary disease on the basis of history and an abnormal electrocardiogram was proven, following the course of ECT, to be an example of the unstable "T" wave syndrome and was reported elsewhere.⁷ It is likely that she had a normal cardiovascular system.

Each treatment was monitored by a continuously running electrocardiogram, stopped only while the convulsive stages were in progress. At most treatments a cardiologist was present. Following each patient's course, a standard 12 lead electrocardiogram for comparison with the pre-treatment tracing was done. In most cases pre-ECT medication was not given until after it was evident what type of abnormality was likely to develop. This seemed to be a more sensible course than giving a number of drugs and medications to each patient and risking an unnecessary drug reaction.

The average number of ECTs was 8.3 per patient. The range was from 1 to 16 treatments. Three patients received one or two

treatments only, due either to request for cessation of the program by the family or evidence of a marked myocardial irritability which was of a magnitude uncontrolled by drug therapy.

The blood pressure in this series was not continuously measured during treatment.

RESULTS

There were no deaths in this group. There were no cerebrovascular or coronary incidents. The only complications were transient in nature and left no permanent damage. The complications can be divided into the "pre-ECT" and "post-ECT" categories with further subdivision as indicated:

1. *Pre-ECT*: In this division the main factors are (a) the anxiety of the patient, with subsequent effect on heart rate and myocardial irritability and (b) the presence of a relative bradycardia.

Anxiety or anticipatory fear played a significant part in the courses of four patients. In this group the *pre-ECT* heart rate was noted to increase steadily with each successive treatment. When the rate reached and exceeded 130 per minute there appeared to be a marked increase in ventricular irritability, as evidenced by frequent ventricular extrasystoles, ventricular bigeminy and a tendency towards transient ventricular tachycardia. Quinidine was of no value as a prophylactic measure in this group. A significant improvement was noted, however, when the patient was given 225 mgm (gr. $3\frac{3}{4}$) of amobarbital sodium intramuscularly one hour prior to treatment. In this type of patient the progressive increase in agitation or apprehension makes fairly heavy sedation a necessary preventative measure. Ventricular tachycardia is the forerunner of ventricular fibrillation, which usually results in sudden death.

The term "bradycardia," when used in relation to the *pre-ECT* pulse rate, may be defined as a heart rate which does not accelerate more than 75 per minute when the individual progresses beyond the first treatment. The average

patient, after the initial treatment, usually has an increase in heart rate to between 80 and 110 per minute. Three patients in this series showed this abnormality. Each developed severe *post-ECT* vagal effects. The danger, in this instance, comes during the vagal "storm" and may result in cardiac asystole, which again may cause death. None of these patients developed asystole but each showed marked vagal effect by manifesting either nodal rhythm, sinus arrhythmia, various degrees of atrioventricular block, sinus arrest, atrioventricular dissociation or shifting pacemaker. These changes occurred either alone or in combination. By using atrophine in doses of 1 mgm (gr. $1/60$) these abnormalities could be completely prevented.

2. *Post-ECT*: In this division the vagal and extravagal arrhythmias and ischemic changes are the primary dangers. The method of Mann and Burchell⁸ is used for classifying the frequency of ventricular extrasystoles. Table II lists the number of patients developing each type of abnormality in this series.

The only patient who failed to demonstrate any electrocardiographic abnormality was the one already mentioned who had the unstable "T" wave syndrome. Each treatment in this case resulted in return to a normal tracing immediately following the convulsion, despite a definitely abnormal "T" wave pattern in each *pre-ECT* tracing. This patient also showed the progressive "anxiety" type of *pre-ECT* tachycardia pattern, but failed to show significant evidence of increased ventricular irritability with a rate as high as 130 per minute before treatment. From these findings it was postulated that the patient would give positive responses in all tests for neurogenic "T" wave instability and also have a normal ballistocardiogram. These postulations were later proven to be so.

Two patients with chronic pulmonary disease and coronary disease caused anxiety on the part of the observers. Without prior medication on the first



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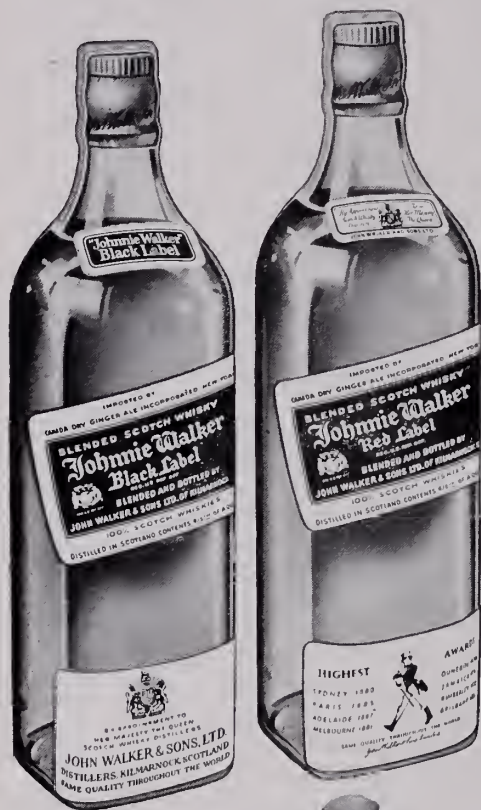
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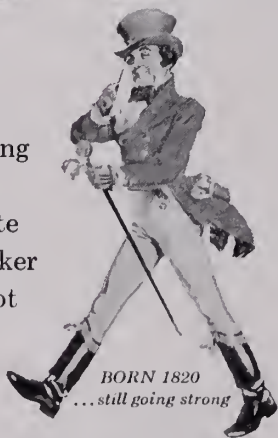


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ECT each patient developed and maintained a profound, livid cyanosis, propagated by diffuse bronchospasm and respiratory obstruction from tenacious secretions. The anoxia produced an intense increase of ventricular irritability. The labored respiratory efforts lead to a pronounced accentuation in the vagal "storm" phase, with subsequent extensive vagal arrhythmias.

It was found that intramuscular Aminophyllin, 450 mgm. (gr. 7½), given one hour before treatment improved the bronchospasm. Atropine, 1 mgm. (gr. 1/60), effectively abolished the vagal complications. Saturation of the patient with 100% oxygen for two minutes immediately prior to treatment reduced the *post-ECT* cyanosis to an almost undetectable level.

These patients finished their courses of treatment with rare ventricular premature contractions as the only manifestations of what at first appeared to be a grave situation, with either a patient mortality or deprivation of further treatment as the alternative choice.

The routine of saturation with 100% oxygen was found to be useful in patients showing *pre-ECT* ventricular irritability or extensive myocardial scarring. This compared favorably with the use of quinidine as a suppressant of abnormal myocardial irritability. However, the combined use of oxygen saturation and quinidine was most effective in reducing the extra-vagal complications to a minimum. The ensuing treatments were tolerated without danger by most individuals.

The patients observed in this series were consecutively treated over a 12-month period, so that the early cases did not benefit from the prophylactic therapeutic measures clarified later by experience.

In this series myoneural blockade was not used, contrary to advice from others,⁹ because anesthesiologist support was not always available. While this type of modifica-

tion to *ECT* would appear to offer certain advantages, it is the author's opinion that its use should be restricted except in those instances where members of the anesthesia department are in the treatment room. Also, occasional severe untoward reactions occur with these agents which are unpredictable and could easily cause death in patients with damaged hearts.

SUMMARY

Electroconvulsive therapy can be effectively carried out on most patients with severe cardiovascular disease. Observations of 18 consecutive patients undergoing a total of 130 treatments successfully are herein reported. Continuous electrocardiograms taken during the convulsive episodes seemed necessary to indicate which type of specific supportive therapy was to be given the patient during the subsequent course of treatment. The use of "shot gun" prophylactic medication is to be discouraged, as is the use of myoneural blockade without extensive precautions.

Coronary artery disease.....	16
Hypertensive cardiovascular disease.....	3
Chronic pulmonary disease.....	2
Rheumatic heart disease.....	1

TABLE I: The diagnostic categories of patients in this series:

Vagal Arrhythmias

Sinus Arrhythmia.....	1
Sinus Arrest.....	6
Incomplete A-V Block.....	4
A-V Nodal Rhythm.....	4
Shifting Pacemaker.....	2
A-V Dissociation.....	2

Extra-Vagal Arrhythmias

Premature Ventricular Contractions	
Rare	5
Occasional	5
Frequent	8
Bi or Trigeminy (Ventricular).....	1
Ventricular Tachycardia.....	3
Auricular Premature Contractions....	3
Auricular Fibrillation.....	1

Ischemic Changes

Total Number.....	9
Abolished with Oxygen.....	3
Improved with Oxygen.....	1
Not Improved with Oxygen.....	2
Not Tested with Oxygen.....	3

TABLE II: *Post-ECT* changes noted in the electrocardiograms of 18 patients undergoing courses of electroconvulsive therapy.

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CASE STUDY OF TRAUMATIC EPILEPSY

C. LAWRENCE R. SOUDER, M.D.*

A male patient, age 19, was admitted to the Delaware State Hospital on regular commitment papers in November 1928. He had been a patient in a general hospital before coming here, and except for interim trial visit periods, he has been here continuously since the above date.

History showed that the father drank alcohol excessively. The mother neglected the children and left her husband about 8 years before the patient was admitted here. The family had not seen her since that time.

In November 1923 the patient was injured by a fall or jump from a trolley car. He was unconscious and was taken to a general hospital. Examination revealed a depressed fracture of parietal and occipital bones, with epidermal hemorrhage.

Shortly after this accident the family noticed a change in the patient's personality. Prior to the accident he had been friendly, witty and well liked. He was easy to discipline. Following the accident he became disobedient, resistive and disorderly. He also began to drink alcohol excessively.

In November 1923 he was operated on at a general hospital for removal of the depressed fragments. In 1924 he had another operation at the same hospital prior to his admission here. Epileptic seizures commenced after the second operation and recurred about every three months. They were grand mal attacks, with loss of consciousness for about five minutes, then a dazed condition of 10 or more minutes frequently was followed by another seizure. He worked in a woolen mill for about six months but had to leave because of the attacks.

At the time of admission to the Delaware State Hospital the commitment

papers indicated that the patient was suffering from depression, irritability, disorders of memory and incoherence. Progress has been marked by conflicts with other patients and excessive irritability at times. He was boastful and, on occasions, inclined to be jealous. He liked attention and was always eager to talk about his condition. There has been a more or less constant hypochondriacal trend. He became loud at times and showed mood fluctuations and temperament changes characteristic of epileptic patients. He was pleasant and likeable when things pleased him but might change suddenly on slight provocation to antagonistic, aggressive and belligerent behavior. He became arrogant, demanding and sarcastic, and was argumentative if he could not have his own way. He usually became more friendly in a few days, however. When well enough to do so he took part in activities and work assignments.

In neurosurgical consultation it was advised that the patient have a cranioplasty to close the defects in the head and, following that, an occipital bone flap and resection of scar tissue. The findings were described as severe and generalized underlying brain damage.

He had an operation in March 1954, at which time excision of the occipital pole was carried down to the ventricle. Since the operative procedure was lengthy, no attempt was made to cover the bony defect at that time. He had several continual seizures prior to and immediately following the operation. During the ensuing weeks the seizures were more easily brought under control and the weakness of the right side and the aphasia, which was present prior to the operation, decreased. He continued to have petit mal seizures involving the right side of the face, which drew the mouth to the right. He also had numbness in the right foot, ascending to

* First Assistant Physician, Delaware State Hospital

the level of the eye but not always followed by a convulsive seizure.

In February 1958 he developed status epilepticus, consisting of focal and generalized seizures which were believed to be related to left cortical scarring due to trauma. The status epilepticus was controlled by Sodium Luminal intravenously. Subsequent doses of Sodium Luminal were given intramuscularly. He was given Dilantin Sodium intramuscularly three times a day. When in the continual seizure state, and after the seizures were controlled, he was given Mysoline orally. A spinal puncture was performed for control of the status epilepticus.

In March 1958 he complained about once weekly of weakness and numbness of his right arm and the right side of the face. This lasted only a few seconds. These appeared to be mild seizures which had not as yet been controlled but which have been much less frequent since that time. At times he complained of a tingling sensation in the right leg, with sudden weakness, at which time the knee would buckle under him. This sensation would begin in the right foot, go up the leg to the hip, and through the body. The calf muscles of

the right leg became hard in contraction and caused some pain. He needed to hold on to something to remain erect, standing on the left leg. This has resulted in some uncertainty in walking. As personality disturbances, irritability, threatening and abusive behavior, temper tantrums, etc. are recognized as epileptic equivalents, the attacks would seem to be of this nature.

He is receiving Dilantin Sodium $1\frac{1}{2}$ grains three times a day; Mysoline, 250 mg. at 8 a.m., 250 mg. at 12 and 500 mg. at 8 p.m. daily; and Mebaral, 100 mg. three times a day.

Up to this time there has been no essential change in his mental condition from that described above. His orientation in all spheres and memory are fair. He has ground privileges. His range of general knowledge is fairly well preserved.

In the above case patient had sustained, due to trauma, extensive and diffuse brain damage. The original cortical scar was excised and he was continued on medication. An amelioration of some of the symptoms was accomplished.

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+ Editorial +

ONE MORE PLUS FOR THE STATE OF DELAWARE

Statistics regarding the rates of homicide and rape indicate that execution of persons convicted of these crimes has not been effective in preventing such crimes. Nor have states and foreign countries which have abolished capital punishment experienced an increase in the rate of homicides, rape or other crimes punishable by death. Rather, there has been a decrease in the rate of such crimes.

Most of the cases of homicide and rape in Delaware which were examined by the State Psychiatrist were not "insane" from the legal viewpoint. However, though not mentally ill, the defendants possibly were suffering from some deep-seated psychiatric problem. Most of them were rational and were able to distinguish right from wrong. They knew the crime they had committed was wrong according to the laws of man and God. The number of frankly psychotic persons among the perpetrators of homicide and rape is usually small. Those who suffer capital punishment are generally the poorly educated who act from primitive emotion, and whom we, as the surrogates of society, have not yet been able to reach.

Society makes no real gain through capital punishment, and since executions have not been a deterrent to crime, capital punishment seems merely to be public self-

gratification. The demand for extreme punishment is our wish to satisfy our own emotional reactions by vengeance. Apparently it has not occurred to us that death may not be punishment to murderers but instead may bring instant relief from the pangs of conscience which should be experienced by the individual who deprives another of his life or who ravages or defiles another.

The death sentence for an act of crime is a primitive reaction on the part of people who establish such a law. The commandment, "Thou shall not kill," is not abrogated through statutes passed by lawmakers and written into their codes. No one has the right to destroy a human life regardless of what that human being has done.

No one is more aware of this philosophy of the preservation of human beings than members of the medical profession whose principle as far back as Hippocrates has been to create, construct, revamp and rehabilitate, and not to destroy.

The General Assembly of the State of Delaware and the Governor are to be commended for passing the bill abolishing capital punishment, thus making the State of Delaware one of the first seven states in the United States to have passed such legislation.

MARSILID* ACTION AND SIDE-EFFECTS

C. P. TURNER, M.D.**

This paper presents a preliminary report on treatment with Marsilid of 40 mentally ill patients. They were selected on the basis of certain symptoms with no regard to sex and were from 22 to 75 years of age. There were 8 men and 32 women in the group. The diagnoses varied, but the patients had in common apathy, withdrawal and psychomotor retardation. The diagnostic breakdown is given in table 1.

Table 1

Schizophrenia	25
Affective Disorders	11
Psychoneuroses	1
Chronic Brain Syndromes	2
Mental Deficiency	1
Total	40

The length of treatment was from 10 to 98 days, with an average of 33.4 days. The largest daily dose was 450 milligrams, given in three divided doses of 150 milligrams each. The average dose was 176.5 grams.

Patients were observed for physical as well as phychic changes. Some patients showed an increase in activity, but it could not always be considered therapeutically desirable. Therefore, results were judged on the basis of therapeutic result as well as an increase in psychomotor activity. Results were graded as follows:

Maximum response.....	++
Moderate response	+
No response	0

Results are given in Table 2.

From table 2 it can be seen that while in 10(25%) of the patients there was an increase of activity, in only 6(15%) were th

results therapeutically desirable. Also, in a large percentage of the patients there was no response.

Table 2

	Activation			Therapeutic Result		
	++	+	0	++	+	0
Schizophrenia		6	19		2	23
Affective Disorders	1	2	8	2	1	8
Psychoneuroses		1			1	
Chronic Brain Syndromes			2			2
Mental Deficiency			1			1
Total	1	9	30	2	4	34

Side effects were noted in 30(75%) of the patients. In only one instance did the occurrence of side effects cause discontinuance of the drug. This was a case of dizziness and vertigo in which the patient was unable to stand or walk without falling. Side effects were varied and are tabulated below:

Effect	No. of Cases
Tremors	2
Blurred Vision	2
Dizziness	8
Drowsiness	1
Allergy	1
Constipation	4
Voiding Difficulty	1
Dry Mouth	1
Edema of Feet	10
	30 (75%)

There was no consistent response in terms of appetite and weight. Fifteen patients gained weight, 11 lost weight and 14 showed no change. There was no correlation between change in weight and therapeutic response.

* Marsilid was contributed by Hoffman-LaRoche Inc., Nutley, New Jersey
** Visiting Psychiatrist, Delaware State Hospital

CONCLUSION

This is a report of a series of 40 patients treated with Marsilid. This drug was used in order to bring about a reversal of retardation in some inactive and depressed patients. The results were not encouraging on two accounts: (1) The majority of patients failed to show the anticipated activation (2) Activation often failed to be

therapeutically useful. There also were many undesirable somatic reactions. Therefore, Marsilid appears to be of limited value in patients with psychotic syndromes characterized by lethargy, social withdrawal and psychomotor retardation.

Investigation of the effects of Marsilid in the treatment of acute affective disorders is now in progress.

CLINICAL TRIAL OF RITALIN* IN THE TREATMENT OF CHRONICALLY UNDERACTIVE AND DEPRESSED PATIENTS

H. A. DENZEL, M.D.**

Since the advent of "tranquillizers," the use of drug therapy has received an impetus in psychiatry. Progress has been made in the treatment of disturbed patients who show hypermotility, increased affective tension and hypernormal initiative.¹ Patients in states of depression, apathy and underactivity, however, do not respond to these drugs. Although electroshock has given good results in the treatment of depression and allied syndromes over the last 20 years, it has remained a drastic treatment and many patients have objected to its use. On the other hand, drug therapy still leaves much to be desired. While the pressor amines of amphetamine and ephedrine are capable of stimulating mental activity, the cardiovascular and anorexic side effects limit their therapeutic value.

Ritalin was introduced by R. Meier F. Gross and J. Tripod as a central nervous system stimulant in 1954.² It produces small peripheral sympathomimetic qualities and exerts little or no effect on normal or moderately hypertensive blood pressure in fact, it produces a prompt reduction in blood pressure elevated by amphetamine or ephedrine.³ In average doses it rarely interferes with appetite. In animal experiments a dose of 0.5 to 1.5 mg. per Kg. induces motor restlessness which lasts for several hours, leaving the animal in a state of fatigue. Larger doses produce atactic gait and tonic-clonic convulsions.² Laboratory studies have shown antagonism of parenteral Ritalin to effects of reserpine, chlorpromazine, promazine and certain barbi-

turates. Clinical confirmation has been obtained through the successful treatment of barbiturate poisoning and such side effects of neuroleptic therapy as sleepiness, lethargy, nasal congestion, tremors and parkinsonism.⁴ Schneider and Holden⁵ administered this drug to monkeys with surgically induced parkinsonlike tremors and although the animals demonstrated typical psychomotor stimulation, the frequency and duration of pre-existing tremors were reduced for several hours. Ritalin apparently has a central stimulating effect on respiration, especially after the administration of morphine, which depresses the respiratory center.

SAMPLE

Ten patients, 9 female and one male were selected for this pilot study. They were from 22 to 74 years of age. Eight patients were diagnosed as schizophranic (4 catatonic, 2 paranoid, 1 simple, 1 hebephrenic) one as general paresis and one as psychoneurotic, depressive reaction. Duration of illness varied from 5 month to 27 years, with an average of 15 years. Clinically, the patients were characterized by underactivity, lack of energy and seclusiveness associated with depression or indifference. These were the target symptoms to be modified by the action of Ritalin.

METHOD

The patients were treated on the ward in which they lived. Specially designed observational records were kept by the ward physician and nurse. Special emphasis was given to recording evidences of activating

* Ritalin was contributed by Ciba Pharmaceutical Products Inc., Summit, New Jersey.

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effects on the basis of motor activities and social behavior.

All patients were examined daily by the ward physician. Somatic reactions were carefully recorded. To assure regular intake, Ritalin was given intramuscularly. No irritation at the site of injection was noted. Starting with 10 mg. morning and noon, the dosage was increased by 10 mg. according to individual response. The maximal dose employed in this study was 60 mg. twice daily. The original schedule was maintained, although it was observed that in some patients activating effect lasted only for approximately one hour.

The author also has administered Ritalin intravenously to a limited number of patients in order to familiarize himself with the effect of this drug. As reported by others^{6, 4} Ritalin can be given safely this way, and no adverse effects on circulation or at the site of injection were found. This method is especially useful if an immediate effect is desired, since response to the injection usually can be observed within minutes. If the response is not satisfactory, injection may be repeated to determine dosage requirements. Although this screening test was not routinely employed, it is believed that the described procedure has merit in eliminating patients in whom a poor response to this drug can be anticipated.

RESULTS

Of the 10 patients treated over a period of 21 to 41 days (average 26 days) five showed definite signs of central stimulation, but only one patient showed concurrent improvement. This patient was diagnosed psychoneurosis with depression. He started to improve three days after the initiation of therapy, and at the end of one month he had gained seven pounds and the depression had disappeared. The other four patients, who presented signs of activation without improvement in their behavior, were all chronic schizophrenics. They manifested aggravation of their psychopathology and began to show hostility and aggression. One patient, in whom the depressive mood and ideation was pronounced, showed marked

facilitation of thought. Formerly she was retarded, reticent and monosyllabic but under treatment she poured out her feelings, thoughts and beliefs. The depressive mood and ideation, however, remained unaffected. This increase in association and verbalization can be seen especially after intravenous injection and is similar to what may be observed after intravenous Methedrine.

A euphorizing effect, as often seen with Amphetamines or Iproniazid, was not evident in our limited experience. Ritalin in parenteral solution seems to be a rapid acting drug with an effect lasting for approximately one to four hours. Nine out of 10 patients lost from 1 to 21 pounds (an average of 8 pounds) during the course of therapy. There appears to be some anorexic effect similar to the action of Amphetamines with higher doses of Ritalin. Aside from this, side effects were mild and consisted mostly of tremors and dizziness.

The action of Ritalin on blood pressure is variable. In five patients of our series the blood pressure remained unchanged. Three patients experienced a rise of 10 and 20 mm. and in two patients the systolic blood pressure was increased 20 to 30 mm. When Ritalin was administered intravenously to normotensive patients, no significant blood pressure change was noted, but in one patient whose blood pressure was 200/90 before intravenous injection of 60 mg. Ritalin, the blood pressure dropped to 130/70 within 15 minutes while the patient showed signs of central stimulation.

COMMENTS

Ritalin is a rapid and short acting central nervous system stimulant which can safely be administered by intramuscular and intravenous route. Dosage must be individualized. In our experience it ranged from 10 to 60 mg. Ritalin was administered intramuscularly to 10 chronically underactive and depressed patients ranging in age from 22 to 74 years. Five patients responded to the drug with signs of central stimulation but only one showed clinical improvement. Nine out of ten patients lost weight during the course of therapy. Other side effects were mild and consisted of dizziness and tremors. A screening with intravenous Rita-

lin is suggested before initiation of therapy in order to eliminate those patients in whom a poor response to the drug can be anticipated.

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ABNORMAL EEG FINDINGS IN FUNCTIONAL PSYCHOSES

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The purpose of this paper is to report abnormal electroencephalograms found in a group of 31 patients with diagnoses of functional psychoses (schizophrenic, manic depressive and involutional psychotic reactions). From the total number of patients with functional psychoses showing abnormal EEGs, the following categories were excluded because of probable influence on recorded patterns: (1) Concomitant brain disorders. (2) Patients undergoing somatic therapies. (3) Patients with histories of psycho-surgical treatment.

It is the opinion of many authors that abnormal electroencephalograms are found more frequently in patients with functional psychoses than in a non-psychotic population. Kennard and Levy^{1, 2} report 60% abnormal findings in a group of 100 schizophrenic patients and 30% to 50% of abnormal findings in another study. Hurst and others³ found in EEGs of depressed patients a tendency towards slow rhythm and frequent occurrence of fast alpha rhythm in manic patients. From 117 manic depressive psychoses 24% showed abnormal EEGs and 21% were found to have borderline EEGs.

Chamberlein and Gordon-Russell⁴ studied a group of 45 schizophrenic patients and

found 45% abnormal tracings. Others⁵ reported the frequent occurrence of instability, dysrhythmia and beta activity as well as slowing of the EEGs of patients with functional psychoses.

All EEGs of this study were interpreted by the same electroencephalographer. Tracings were performed with an 8 channel GRASS EEG machine. The technique used was a combination of monopolar, bipolar and phasereversal electrode placement methods. Records were done when patients were awake and asleep. Hyperventilation for three minutes was invariably used. Tracings were divided to the following subtypes: (1) Normal tracing. (2) Slow activity. (3) Fast activity. (4) Generalized paroxysmal cerebral dysrhythmia. (5) Poorly developed pattern.

SAMPLE:

The 31 patients were admitted to the Delaware State Hospital from 1954 to 1957. Table I gives diagnostic classification, range of age, average and sex. There were twice as many females as males. The ages ranged from 16 to 76 years, with an average of 42.3 years. Only 3 patients were older than 60 years. They showed clinically no signs of cerebral arteriosclerosis or senility.

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TABLE I
TYPE OF DISORDER, SEX AND AGE

Psychiatric Disorder	No of Cases	Sex		Average Age	Age Range
		F	M		
Schizophrenic Psychosis	18	12	6	33.5	16 - 50
Affective Psychosis	9	7	2	55	25 - 76
Involutional Psychosis	4	1	3	55.5	53 - 58
TOTAL	31	20	11	42.3	16 - 76

TABLE II
EEG DATA

Psychiatric Disorder	No. of Cases	No. of EEGs	Multi-		Concor- dant EEGs	Discor- dant EEGs	Slow	Findings			
			Simple EEGs	ple EEGs				EEG Fast	Poorly de- veloped	GP CD*	Nor
Schizophrenic Psychosis	18	35	7	28	26	9	15	3	1	13	2
Affective Psychosis	9	14	6	8	6	8	7	—	1	3	3
Involutional Psychosis	4	5	3	2	5	—	3	—	—	2	—
TOTAL	31	54	16	38	37	17	25	3	2	18	5

* generalized paroxysmal cerebral dysrhythmia

Table II correlates the abnormal EEG patterns with type of psychosis. It tells how many patients had single and multiple EEGs performed, lists how many of the multiple tracings were concordant (the multiple EEGs of the same patient showing conformity of their pattern) or discordant (if there was no uniformity of findings). From the 54 EEGs of these 31 patients 49 were found abnormal. More than 50% of those abnormalities showed slow activity and nearly 40% generalized paroxysmal cerebral dysrhythmia. None of the 10 patients with the latter findings gave clinically evidence of epilepsy or organic brain disease.

CONCLUSION

The fact that patients with so-called functional psychoses have abnormal EEGs

brings up the question whether their mental disorders are symptoms of an actual brain disorder or whether the abnormal EEGs are only secondary and concomitant findings. These findings are not only of theoretical but also of clinical interest, since they have a direct bearing on therapy.

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THE UNMASKING OF A FUNCTIONAL PSYCHOSIS AS AN ORGANIC BRAIN SYNDROME

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It is important to bring up those cases in neuropsychiatry which challenge diagnostic accuracy. The "borderline" between organic illness of the brain (in the medical sense of "morbid") and those called "functional" will give inspiration and advice to anyone engaged, without preconception, in the treatment and diagnosis of mental patients.

An "organic" change in the brain brings sooner or later a clear picture of mental signs, easy to diagnose in most cases. Nevertheless, we find again and again that long, insidious onsets of many years in some of the cortical atrophies or arterio-arteriosclerosis are not rare.

Perhaps sometimes diagnosis is impossible because the lack of clear-cut signs or symptoms complicates it. At other times, because we do not think of the possibility of such a marked process, we find that we are facing vague, fluctuating, diffuse psychopathology. Nevertheless, these cases are important from the scientific point of view as well as from the standpoint of treatment, care, assistance and outlook.

A CASE REPORT

A male patient was born in 1904. He was the first child in a family of three of which the last child died at the age of 21. The other one is in good health. Both parents were described as "nervous" and incompatible and childhood was marked by continuous arguments and feuding.

Social and financial status was high. The patient obtained a university degree and later took charge of his father's business. He was married at 24 years of age. He

was never sociable or friendly and at the age of 28 or 29 he developed an irritable attitude and explosive behavior. He was always meticulous, perfectionistic and almost obsessive.

About 1942 he was referred to a psychiatrist because of overt anxiety. Four years later he began psychoanalytic treatment, which lasted for more than two years. Nevertheless his mental status became steadily worse and mood reactions appeared often. He was admitted to a private clinic, where a course of electroshock treatment was given. Following discharge, he seemed improved but soon regressed gradually, presenting depressive moods often.

In 1952, he was admitted to the Pennsylvania Hospital. He was described as being constantly preoccupied, excited, incoherent at times, perseverating, profane, boisterous, explosive, tense, making noises and crawling on the floor. He was forgetful, confused, untidy, aggressive, etc. Neurological examination showed hyperactive reflexes, left Hoffman's sign and expressive aphasia for some words. EEG was normal but some subcortical changes were suspected. Later, he was described as having some memory loss, poor general grasp, poor attention and concentration, and symbolization, judgment and reasoning were impaired. Psychological tests were interpreted in the form of a schizophrenic process, although an organic involvement was not ruled out. X-rays and other examinations showed findings within normal limits.

He was discharged and diagnosed as "Schizophrenic Reaction, Undifferentiated Type," and as a second possibility, a "Chronic Brain Syndrome of unknown etiology."

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On admission to this hospital on December 10, 1952, he was diagnosed as "Involutional Psychosis." He received seven electro convulsive treatments, with some improvement, and was discharged after four months of hospitalization. Seven months later he was readmitted and the former diagnosis of involutional psychosis was maintained although schizophrenic reaction was suspected. There were psychomotor agitation, mild paranoid ideation, incoherence in speech, untidiness, insomnia, incomprehensible speech, lack of judgment, disorganized thought, rumination, perseveration, lack of concentration and attention, etc.

In March 1954, a course of Chlorpromazine was started. He received 800 mgs. daily. No noticeable change was observed. One month later, a transorbital leucotomy was performed. He recovered and improved. He went home on weekends. In August the Chlorpromazine was discontinued without any improvement. Reserpine also was used without success. He regressed more and more, and the weekends were discontinued.

In March 1955 evident perservation and odd, unexpected, jerky movements were noticed. Later, he began to walk with very short steps. A neurological consultation in June established that: "The patient appears to have a frontal lobe syndrome." The neurologist thought that no basal ganglion was involved. Throughout 1955 he remained agitated and restless, receiving either Reserpine or Chlorpromazine.

In February 1956 another neurological consultation was requested. The neurologist's impression was that no organic brain damage was present. His behavior and mental status were still the same. In May another neurological consultation showed slight evidence of a focal right cerebral lesion involving both the cortex and subcortical structures. The pneumonencephalogram showed considerable cortical atrophy involving both frontal lobes and sylvian fissures, with bilateral dilatation of the lateral ventricles. In September he had several seizures and was given Dilantin. The jerky and purposeless movements were increasing constantly. They were chorei-

form in character, incapacitating the patient to walk without help.

On July 26, 1954, April 10, 1955 and February 14, 1956, repeated EEGs were normal. Laboratory findings were within normal limits. Spinal fluid taps, which were repeated, always showed normal findings.

In June 1958 the neuropsychiatric status of the patient was characterized by a gross impairment of intellectual capacities, loss of memory and judgment, disorientation in time and place, lack of concentration and untidiness.

Neurologically, we found gross choreic-athetotic movements, forced grasping, Wartenberg's reflex, Hooking (Kleist's sign), ataxia with body movements, adiadochokinesia and hypoactive tendon reflexes. These findings confirmed the existence of a cortical atrophy of the frontal lobe, with involvement of basal nuclei and frontoponto cerebellum pathways.

COMMENTS

The patient received various kinds of treatment including psychoanalysis, electro convulsive therapy, drug therapy and T.O.L., to which he responded with only temporary improvement. It is worthwhile to remark that the onset of organic mental illness can be characterized by psychic symptoms only. Quoting Feuchtwanger: "The first symptoms noticeable in a syndrome of the frontal lobe are impairment of judgment (impulsivity), moria, and in a less degree, disturbance of equilibrium. In the second place and later (generally) appears the somatic components as disturbance of the movements, sensibility, sensorium, speech, memory and ideation."

Other authors define the following symptoms for consideration of frontal lobe syndromes: (1) disturbance of mood and temperament, (2) disturbance of psychomotor activity and (3) intellectual disturbances.

The reported case demonstrates the difficulties of division between functional and organic diseases. This stresses the necessity of caution in diagnosis and therapy without exhaustive and repeated physical examinations.

UNDERSTANDING A CHILD'S NEEDS

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Approximately fifty per cent of all referrals made to the State of Delaware Mental Hygiene Clinic pertain to children and their problems. The desire for better guidance and help with the problem of understanding the needs of children is expressed constantly. If we can comprehend what is required to provide a proper atmosphere conducive to good mental hygiene practices in child care, management and development, perhaps we will be able to solve more of the problems that come to the attention of mental hygiene clinics.

The day of the "seen but not heard" philosophy of child rearing has almost disappeared. What has taken its place? Has the change resulted in better understanding and managing of our children? The child becomes our chief concern. It is about him that we ask: Why does he act the way he does? Why is he different from the boy next door? How can we help him to behave differently from what he does now?

Before we can begin to answer these and many more questions we should first try to investigate what goes into making the child who and what he is. A child lives, behaves and grows—but so does an onion. Unlike an onion or any subhuman organism, a child "senses," i.e., he feels, hears, sees, has emotions and thinks. To describe a child is to describe almost all of human nature. A child also is a social being and is subject to all of the factors in his social and physical environment for development. A child has needs, and these needs must be met in order to insure his proper development and maturation.

One has only to look casually at the practices of child rearing in countries other than our own to contrast the various concepts of and attitudes towards a child's

nature. We can begin to see how the practices of child rearing are related intimately to religious, ethical and cultural ideas, economic circumstances, social strata, political doctrines, and in fact, an almost unending series of ideas, goals and purposes, for the most part far removed from the child himself. One might speculate that most of the traditional methods of child rearing stem from sources that have little relevance to the immediate needs of the child. It has been stated that civilized man has survived despite, not because of, the methods of child care!

Before one attempts an investigation of the problem of child needs he first should look into his own personal biases, beliefs and prejudices to appreciate how these color his feelings and values. How many parents have conceptualized the role of their child before he has made his entrance into the world? At birth a child may enter a family which is benign or hostile simply because of the accidental choice of its sex. Parents who readily tend to the physical requirements of the child may be hostile to it because of the sex and may seriously hamper the child's need for love, security and affection which are as vital as the need for physical care. Concomitant with this need is the requirement that the child be accepted as a unique individual who should be protected from the untoward feelings and biases of adverse parental influences.

A child has needs for nutrition, sleep and activity. However, he has to develop at his own rate of growth and cannot be held to a rigid schedule based on what the child next door is accomplishing. This applies to the child's eating habits, need for rest, weaning or bowel-training.

A child frequently is disturbed by emotional promptings such as anger, rage and grief, which search for some outlet or re-

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lease in overt behavior. Frustration of this release can impel the child to react blindly, cruelly and destructively toward objects or individuals and even himself. It is hard for adults to comprehend the inner feelings thus aroused in a child and they in turn may react toward him with force and restraint. This may hamper the emotional maturation of the child. Although the adult may temporarily gain control of the child, the child loses the opportunity to learn how to control his own emotions. Failure of the child to regulate and pattern his emotional feelings and expressions in order to be freed of their urgency will only increase the child's resentment and serve to keep him at an infantile emotional level.

There is also a vital need for socialization. The long period of care and protection required to make a child self-sufficient and mature demands that he become a social being. It is interesting to note how isolation from the group, be it family or society, is often used as a severe form of punishment. This is accomplished by exile from one's country or witnessed in the words of the irate parent to a child: "March straight to your room and stay there until we call you." Because of man's unique nature—his intelligence, flexibility and socialization—he has produced complex cultures and civilizations. Any given society with its accompanying cultural standards can require a minimum or maximum productivity from its members. If the society fosters more development of the potentials of its members, the individual can make further contributions to a better social world.

As a member of a social group, a child has the task of learning how to get along with its members. He must respect those in authority and learn how to control his

conduct in keeping with the group's customs. This means that he must suppress many of his desires and accept temporary frustration for anticipated rewards. The child must familiarize himself with the mores of his group. However, if authority is experienced first by the child in the form of severe, coercive paternal figures, successful socialization will be thwarted. Resentment towards authority will be directed towards all authority figures. Here, then, is another great need for the child; that of accepting those in authority without developing fear and conflict with them.

From experiences with parents, siblings, teachers, ministers and others in his social world, the child develops a vital need to create an ideal of himself and the kind of person he would like to be. This image will include his experiences, emotions and feelings. They may be constructive promptings toward positive achievement, or may take the form of negative or destructive urges which are seen in delinquent behavior and in cases of mental disorder.

To the child the world around him is large and perplexing. He meets daily situations about which he feels inadequate. Faced constantly with the problem of adaptation to his environment, the child has a pressing need for the security of stable relationships both with his physical surroundings and human relationships. The maintenance of this security demands unending patience, understanding and tolerance on the part of those responsible for the child's development.

These are only a few of the needs of a good mental hygiene approach to child rearing. It is to be hoped that with intelligent, responsible planning by parents, many of the problems of children seen in mental hygiene clinics may be eliminated.

SOME OBSERVATIONS ON THE USE OF VISUAL-MOTOR GESTALT TECHNIQUE IN GROUP TESTING OF PERSONNEL

JOHN T. DRURY, M.A.*

One of the basic problems in the operation of mental health facilities is the selection and evaluation of personnel. Even in the employment of attendants from a very limited labor pool, it is important to eliminate the unfit and to obtain the best possible service from those who are to serve in this important capacity. For the attendant spends more time with the patient than anyone else on the hospital staff and he can be the most important factor in the patient's quick return to a useful and satisfying role in society. Through the years the Delaware State Hospital has made an effort to test every attendant employed in its facilities.

However, testing large numbers of people who are likely to be familiar with psychological testing presents special problems. Large numbers necessitate group testing, and group tests are seldom as good as individual tests. In this setting, too, the inventory type of test, with many obvious questions, does not give the kind of information desired. Hence there is a clear need for brief tests, easily scored and interpreted, that are well-disguised and practically impossible for the subject to distort or structure. But the instruments used must yield sufficient information to make the procedure worthwhile. It therefore becomes necessary to use tests that are well-established and have a sufficient body of literature and research results to give the tester confidence in results and interpretations. One way of attacking this problem is to adapt widely-accepted and well-validated individual tests to the group-testing situation.

An instrument that takes only a few minutes to administer and frequently yields important findings as to organic functioning, intelligence, and personality problems is the Bender-Gestalt Visual-Motor Test. This test has a long history, going back to experimental work done by Max Wertheimer and others. The assumption of the Gestalt psychologists was that we tend to perceive whole images rather than a conglomeration of parts, and that we tend to organize these "wholes" according to principles of proximity, similarity, direction and inclusiveness. But Lauretta Bender pointed out that this was a static concept and that it failed to take into account the drives and tendencies of human conduct, growth, retardation and development. Paul Schilder emphasized the idea that the organism reacts by a total process, with its total potential, to a total situation and adds something thereby to the experienced perception. Further experimentation has verified these concepts and tended to show that the perceiver completes Gestalts in a manner that is meaningful to him, to organize the perceptions according to sensory-motor patterns that are consistent with the developmental level, and to distort the configurations in a manner expected with certain pathological states organically or functionally determined.

This experiment was designed to evaluate the results of an adaptation of the visual-motor Gestalt technique to the group procedures. It was necessary to find out whether or not the stimuli were handled in the same way, if the same kind of distortions were obtained, if the test could discriminate between good attendants and poor ones, and if the results of this test

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were consistent with, yet added to, the information obtained from other tests in our battery (The Revised Beta Intelligence Tests, the Delaware Sentence Completion Test, the House-Tree-Person Test and the Projective Questions).

The designs used by Bender and others were enlarged and placed on cards 14" x 22" (approximately 12 times the original size) and were then shown to the subjects (each of the nine cards for about 30 seconds) at a distance that roughly varied from five to twenty feet. The applicants were asked to reproduce the nine drawings on a regulation 8½" x 11" sheet of paper as accurately as they could without using any aids other than the pencil. Full and free cooperation was always obtained, since this test is very easy to perform and is non-threatening even to anxious individuals. Other members of the staff used the test and varied the technique in the manner of Hutt by giving the subjects several sheets of paper, etc. Only those tests that were done in accordance with the foregoing instructions were used in this study.

Qualitatively the results were in accord with those obtained from general populations tested in the hospital and in the outpatient clinics. A greater variation in size of the figures was observed, as might be expected, since the patterns were unfamiliar to the subjects and the distance between the subject and the stimuli varied greatly. However, the same kind of primitivization (substituting responses of an earlier developmental level), rotation (turning the designs upside down, or sideways), fragmentation (reproducing only part of the design), etc., was demonstrated by disturbed persons on this test as is obtained on the individual testing. The same evidences of organicity were elicited by this method and the same degree of correlation was observed with intelligence tests. The latter is not too good, since there are obviously other factors than intelligence at work in this test, but it is in the expected direction.

An attempt was made to quantify the results, using Pascal and Suttell's method of scoring the visual-motor Gestalt test for

various deviations. The obtained scores showed a range from 21 to 171, with a mean of 63.5, the higher scores reflecting greater deviation from the stimuli and hence greater disturbance or dysfunctioning. These scores were compared with the intelligence quotients and the ratings of the Nursing Division as to the person's stability and work record.

The sample is small and a statistical approach would be meaningless, so the results will be reported factually and numerically.

The mean was used as a dividing or cut-off point and two groups were obtained: those with scores on the "Bender" above 64 and those with scores below 63. The former group contained 16 persons, of whom 9 were rated unstable and 7 were rated stable. The low score group contained 17 persons, of whom 11 were rated stable and 6 unstable. These results are in the expected direction and tend to verify the impression that unstable or disturbed people do poorly on this test and obtain a score showing more deviation from the stimuli.

A check was made against the obtained intelligence quotients on the Beta, and the normal (average group—from I.Q. 90 to 109) was eliminated as fairly balanced. Of those who obtained an I.Q. below 90, 3 showed scores on the Bender lower than 63 and 5 showed scores higher than 64. Of the 8 persons in the study who showed an I.Q. higher than 110, 6 scored below 63 on the Bender and 2 scored above 64. Again, these results are in the expected direction and show that intelligence is a large factor in this test. It also shows that these tests provide some measure of checking against one another and further verifies our impression that there is some pathology present when there is a large discrepancy between the person's performance on the Beta and on the Bender.

Further study tends to show that bright people (I.Q. above 110) do not usually continue employment in this capacity. This probably is so because they return to school or obtain better positions. Whereas the study shows that those of dull-normal intelligence do continue in this employment

(a ratio of 6 to 2) and 4 of these are rated as good workers and stable.

It is possible that this study was somewhat defeated by its own efficiency since reports which were sent to the Nursing Division at the time of this initial group examinations may have facilitated better placement and adjustment of the worker to the job. However, this is the purpose of testing and no one would have it otherwise.

It is the conclusion of this experimenter that this adaptation of the visual-motor Gestalt technique is a fruitful addition to our test battery and repays the brief time spent in administration. However, it is obvious that the test cannot be used alone and should not be used to arbitrarily elim-

inate candidates. It can serve the purpose of obtaining a better placement for a candidate who shows signs of visual-motor limitations where he will feel more adequate and do a better job. It can, together with the other tests, pick out the highly skilled or very bright candidate and help the department place this type of candidate in a challenging and satisfying position, where he will be more likely to remain. It also can help to pick out the unstable or emotionally disturbed candidate in order that he may be closely supervised and assisted with his own problems. All of these placements will make for the most advantageous use of all help available and a more efficient functioning of the whole institution.

THE RELATIONSHIP BETWEEN PSYCHOMETRIC FINDINGS AND BEHAVIORAL PATTERNS; A CASE STUDY

LEON E. PETTY, M.S.*

The Wechsler Intelligence Scale for Children and the intermediate form Wechsler Bellevue Scale II have received increased and equal acceptance for evaluating the general intelligence level of children and adolescents. These scales offer excellent opportunities for retest purposes to assess the development of individuals who have been previously examined.

The most obviously useful feature of these scales is the division into verbal and performance batteries. The a priori value of this plan makes possible the comparison between abilities such as verbal facility, reasoning, manipulation of objects and perception of visual patterns. Of equal importance to the clinical psychologist is the diagnostic significance of the discrepancy between verbal and performance subtest scores. The variation between verbal and performance scales are frequently associated with some type of mental pathology. The larger the discrepancy, the greater the probability of pathology. It has been noted that, in general, most mental disorders show greater impairment of functioning in the performance than in the verbal spheres. This holds true for every type of impairment along the continuum of psychoneurotic to psychotic disorders. Large discrepancies between verbal and performance scores in favor of performance have been observed in those cases described as adolescent psychopaths and mental defective individuals. However, in general the clinician usually follows a rule of thumb that a variation of eight to ten points (the intelligence or I.Q. not far from average) between the two scales in either direction falls within normal limits. It has been noted that children of superior intelligence generally

do better on the verbal than the performance part of the examination.

In general, individuals who are overtly aggressive or commit crimes on the basis of neurotic conflicts are viewed as having a psychopathic character disorder. Shafer lists the prime characteristic features as weak integrative ability and underlying primitiveness of thinking, blandness, ostentatious overcompliance covering a basic callousness and inability to empathize with others, impulsiveness, fabulizing and preoccupation with anti-social behavior. The characteristic pattern obtained on the Wechsler Intelligence Tests is a superiority of performance over the verbal level.

Jastak has observed that children with good intelligence who show inferior achievement in most subjects usually manifest maladjustment of a social nature, i.e. truancy, stealing and sex offense.

In the general population seen at the Mental Hygiene Clinic, children of school age constitute a large proportion of the patients. These children, showing a variety of behavioral problems and symptoms, frequently have had previous psychological evaluation. This prior testing serves as a valuable aid in comparing patterns obtained over a period of time.

The purpose of this case report is to describe the behavioral disorder of a child in various stages of development; to compare psychometric findings; to show how the nature of his disorders show a marked similarity with his life situation as to suggest psychogenic etiology and to illustrate the tenability that mental maladjustment follows along a continuum.

The report concerns a 15-year-old boy who originally was referred to the clinic at

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the age of nine on charges of breaking and entering and behavioral difficulties. Years later he was referred again for breaking and entering and larceny. His latest referral includes the above reasons and severe emotional problems.

BRIEF PERSONAL HISTORY

The patient is the older of two children. The case history includes little information regarding the patient's younger sister. The physical history of the patient indicates that birth was normal, although lack of prenatal care and undernourished condition of the mother are reported to have left him sick for the first two years of life. At four years of age he had a "nervous breakdown," had nightmares and could not sleep well.

During this period of the patient's life the parents were having marital difficulty. The mother stated that the patient witnessed many scenes between the parents and "feels that they had an effect upon him." The mother is described as an attractive woman, highly ambivalent with hysterical and compulsive tendencies. Her understanding of the patient is essentially an intellectual one. The patient's father was an aggressive alcoholic and unstable individual who often stated that his son would end up in a reform school. The parents separated early in the marriage (when the patient was approximately eight years of age, the divorce became final). The mother remarried when the patient was eleven years old in an attempt to stabilize her home life.

The patient had difficulty with teachers in school but his work was reported to be good. He is said to have been an insatiable reader, resourceful and creative in school work. He was affectionate to his sister and is described as a likable boy who was easily led into trouble. Although he lacked an ego ideal he is reported to have developed a resourceful personality to some extent. In other reports the patient is said to have remained a nervous child who cried frequently. At the age of eleven he was reported to have suffered "blackout spells." He experienced what was called an unnatural sex act around the age of thirteen and on another occasion was stuck for

sometime in mud up to his waist before he was removed.

TEST FINDINGS AND DISCUSSIONS

The patient was examined between the ages of seven and nine years. At that time, he was described as passive and dependent in his relationship to the examiner. The WISC, which elicited selective and variable effort from the patient yielded a full scale I.Q. of 112, with a verbal of 106 and a performance I.Q. of 117. The discrepancy between verbal and performance scores is considerable as is the range of subtest scatter. The patient achieved a minimum weighted score of eight and a maximum weighted score of fourteen. The personality pattern analysis indicated that the patient had superior capacity, but his pattern of development was uneven and indicative of his maladjustment. Tests of perception, manual manipulation and planning, which refer to alertness of the organism, were superior for his age. On the other hand, tests related to interpersonal contact like verbal reasoning, judgment and ability to communicate were average. Alertness to detail, the hallmark of psychopathic adolescents, rated high. His acting out episodes were viewed as determined by mechanisms of compensation, hostility and rationalization. The tendency to identify with a female figure blended into his feeling of inadequacy and were complicated by attempts to manipulate his mother figure.

Following this examination the patient received individual therapy for approximately two years. During this time he is alleged to have remained out of trouble. Approximately two years after termination of therapy the patient again had difficulty which resulted in placement at an institution for emotionally disturbed children. He was treated by a child psychiatrist for 56 weekly sessions and relased on a trial visit with the following note: "It is my impression that the patient's super-ego has become gradually, in the process of therapy, much better integrated but still occasionally he has expression in which he shows weakness. . . ."

Five months after discharge from the institution the patient was committed to

an institution for delinquent boys as the result of breaking and entering and larceny.

On the psychological examination five years later (age 14 - 11) using the Wechsler-Bellevue Scale Form II, a less select and variable pattern was elicited. The patient achieved a full scale I.Q. of 126, verbal 129 and performance I.Q. of 115. The discrepancy between the two scales was still wide but in a different direction. The patient now achieved a verbal score which is 14 points higher than the performance score. The range of subtest scores was from 6 to 16. The subtest patterns remained fairly constant, with one notable exception; alertness to detail was now only slightly above average, being replaced by tests related to manual manipulation and synthetic ability. The Wide Range Achievement Test indicated that the patient was capable of reading on the tenth grade level but arithmetical ability was only at the sixth grade level. This pattern frequently is associated with maladjustment of a personal nature.

The most striking difference noted in comparing the findings of the two psychometric examinations was the reversal of verbal and performance scores. The patient functioned on a higher intellectual level than that previously obtained but the reversal of patterns seems to indicate that he has, to some extent, begun to internalize his conflicts and to adopt new modes of behavior. This appears to be a tenable hypothesis in view of the fact that the patient has written several suicide notes and has been unable to face up to more aggressive boys in his cottage at the institution. Since being placed in a cottage with older boys and given unobtrusive protection and support by boys and staff, the patient has begun to show conformity and stability at the institution.

At the time of administration of the earlier psychometric, the patient was at the mercy of a disrupting environment and was unable to satisfactorily resolve any phases of his development. He was constantly subjected to an unstructured milieu, lack of ego ideal and mounting pressures. These factors undoubtedly contributed to the develop-

ment of an inadequate and weak ego and caused him to seek every opportunity for furtive outlets against those who could not retaliate. Weak integrative ability and underlying primitiveness of moral values, which have not progressed beyond the infantile stage of control, a basic callousness to punishment, and impulsiveness were prominent factors in the pattern of development.

Subsequent psychotherapy and institutionalization provided structure and aided in the development of some ego strength. Presently his manner of allaying anxiety and guilt are by disassociation and flight into passivity. The masochistic pattern that developed out of his matrix of growth and development are expressed in his attempt to indentify with his father as a reprehensible, guilty and punishable individual. The pattern that seems to be unfolding is a somewhat bland emotionality, covert hostility, guardedness and tendency towards disassociation. These are the danger signals noted in the development of the patient's severe character disorder. Intellectual abilities are superior with widely uneven development of function. Synthetic, manipulative and verbal facilities are well developed but contrast with weak development in areas pertaining to social adjustment, such as judgment, attention and reasoning functions. He is less alert to detail than previously, showing some tendency to restrict areas of awareness perhaps as a means of self-protection against a hostile and intolerant environment. On the other hand, this lack of alertness may be the result of changing behavioral patterns.

It seems reasonable to assume that psychogenic factors, institutionalization and psychotherapy have played important roles in his personality structure. It is apparent that some change in the personality structure has taken place, as noted in the psychological examinations. The principle that pathology follows a continuum seems well illustrated by the findings evidenced in the patient's protocols.

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THE ROLE OF THE PSYCHIATRIC SOCIAL WORKER IN EFFECTUATING VOLUNTARY SELF-COMMITMENT OF A MENTALLY ILL PERSON TO A PSYCHIATRIC HOSPITAL

JOSEPH BERN, M.S.W.*

This paper was written to point up the psychiatric social worker's role (as well as possible approaches of other community workers) in guiding the mentally ill toward voluntary self-commitment.

The case I shall discuss was brought to the attention of the Mental Hygiene Clinic by Mrs. Y's family physician. He stated that Mrs. Y might be able to use the Mental Hygiene Clinic for out-patient treatment or that she might need to go to the psychiatric hospital. Mrs. Y complained to her physician of a fear of death, "strange feelings" and dizzy spells, and he had prescribed medication which was designed to have a quieting effect on her.

When she came to the Mental Hygiene Clinic for an interview she related that the medication was ineffectual and that in the last few days she had a greater dread of dying than before. She was afraid that her heart would stop, and she had choking sensations. She further stated that she felt so nervous at times that she told her husband that if she continued in this condition she "was going to kill herself." She also stated that her three-year-old son was getting into everything and upsetting her so greatly that she "felt like taking a knife and killing him." She complained that in the two days prior to coming to the clinic she could not sleep or eat and that she was afraid to eat anything offered her by her neighbors because she feared being poisoned. In the interview Mrs. Y and I came to the conclusion that she was ill and

wanted help, and we agreed to explore how this help could be given her.

The Clinical Director was contacted and the symptoms were discussed. He suggested that Mrs. Y be examined at the state psychiatric hospital with a view toward possible admission. Mrs. Y's family physician was contacted and we discussed the rapid deterioration which had taken place. I also discussed the Clinical Director's recommendation that an immediate psychiatric examination was indicated with a view toward possible hospitalization. Mrs. Y's family physician concurred with the recommendation of the Clinical Director. I asked him if he would talk to her about going to the hospital for examination and possible voluntary commitment, since I knew that she trusted his judgment. Mrs. Y, after talking with him, agreed to go for an examination.

I talked with Mrs. Y, her husband and her mother-in-law about what a possible voluntary commitment might entail and how it might be accomplished. Mrs. Y's mother-in-law assured her that she would take care of the child while Mrs. Y went for an examination, and should a voluntary commitment be necessary, she promised to take care of the child for an indefinite period. I contacted the State Hospital, gave a report and determined that bed space was available.

When the intake psychiatrist called me at the conclusion of his examination, he advised that he had suggested to Mrs. Y that she commit herself voluntarily to the

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state psychiatric hospital for treatment, and she did so.

CONCLUSIONS:

Each case in a Mental Hygiene Clinic involves a different individual and is handled differently by those connected with the case. I have tried to evolve from the experience of the Mental Hygiene Clinic some general statements which I think can be utilized by social workers and others who work with mentally ill persons in the community. They are as follows:

1. Help the mentally ill person recognize that he is ill and that he wants to get well.

2. Aid the mentally ill person in exploring his own stake in getting well and how he may be able to function more effectively when he is well. Help him to compare this hoped for state of well-being with how he functions when he is ill and help him to focus on how he may be affecting his family relationships, his work relationship and his community relationships.

3. Explain fully to the mentally ill person what facilities are available for his examination, diagnosis and treatment.

4. Show the mentally ill person that hospitalization on a voluntary commitment basis can be one of the suggestions which might grow out of an examination and can be one of the ways he can elect to help himself to better mental health. Discuss fully and completely what voluntary commitment involves.

5. Help the mentally ill person to obtain competent psychiatric examination and

treatment either by helping him make direct contact with the psychiatrist or psychiatric facility or by helping him and his family (where family involvement is possible and advisable) to contact the psychiatrist or psychiatric facility.

Needless to say, there are many people who are mentally ill but can not recognize that fact. Efforts toward voluntary commitment may prove fruitless with them. In these cases involuntary commitment may be the only way to provide treatment.

However, I believe that many mentally ill persons can be helped to take the first step toward voluntary self-commitment to a psychiatric hospital if community workers are taught that the mentally ill person often does have some awareness of his illness and may have a desire to get well.

Patience to talk and "get through" to the mentally ill person is the first essential ingredient, and understanding is the second vital component. Hospitalization of any kind has a frightening element of the "fear of the unknown" and may involve real pain and trauma. Development of this understanding should be a part of the community worker's training, to help relieve the fears which block acceptance of voluntary self-commitment.

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MEDICAL COURT CASES



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“INCORRECT DIAGNOSIS”

CHRISTIAN VS. WILMINGTON GENERAL HOSPITAL ASSOCIATION, INC.

Supreme Court of Delaware 135 A. 2d 727

This was an action against a hospital which employed an intern who allegedly failed to make a proper diagnosis. The Superior Court of New Castle County, Delaware, directed a verdict for the defendant hospital at the close of the plaintiff's testimony. The plaintiff brought writ of error to the Supreme Court of Delaware, which affirmed the decision of the lower court...

The plaintiff, who was 16 months of age at the time of the injury, while playing in her home, fell on a glass bottle which broke and severely cut her right hand. The plaintiff was taken by her parents to the Wilmington General Hospital and there treated by an intern then on duty in the emergency ward. At the time of treatment, the plaintiff was crying and struggling so that she had to be held by her parents and a student nurse then of duty.

The intern examined the wound, treated and sutured it. In response to a question by the child's father, the intern stated that the tendons of the hand were not severed. Several days later the plaintiff was again taken to the defendant hospital. She was again examined by the same intern, who noted that a stiffness had developed in the index finger of her right hand. At this time the intern did not diagnose the stiffness as having been caused by a severed tendon.

Subsequently the plaintiff was examined at the Philadelphia Naval Hospital and her parents advised that the tendon serving the index finger had been severed, and that an operation would eventually be required to repair it. As of the date of the trial of the case in the Superior Court of New Castle County, four years following the injury, the operation had not been performed.

The courts found that:

1. it was entirely possible in examining the plaintiff according to the accepted medical standard for the intern not to have ascertained at the time of such examination that a tendon had been severed,
2. the failure to ascertain immediately the severing of the tendon did not result from a failure to conform to the accepted medical standard, and
3. No permanent injury followed the failure to discover the condition.

The Supreme Court of Delaware declared: "It seems clear from the plaintiff's case that the intern at the defendant hospital examined the infant plaintiff as any other doctor in the community would have examined her under like circumstances. There is no evidence that his treatment of the wound and suturing failed in any respect to conform to the established standard for the medical profession."

BOOTH VS. UNITED STATES**United States Court of Claims 155 F. Supp. 235**

The plaintiff brought suit against the United States (acting through the medical personnel of the United States military government in Germany) for malpractice, alleging that her husband's death was caused by the failure of the Army medical personnel to use reasonable and proper skill and knowledge in diagnosing and treating her husband's condition, thereby breaching the legal contractual obligation which the Government had assumed toward Booth, her husband.

Army medical authorities and physicians in Germany incorrectly diagnosed Booth's condition as aerophagia instead of carcinoma. As a result of the wrong diagnosis, the cancer grew to such proportion that Booth died.

Lack of skill or care in diagnosis as well as in treatment is malpractice. Although a physician is liable for a failure to diagnose correctly if such failure is due to a lack of required skill or care, if he does use the proper degree of skill and care, he is not

liable for a mistake in diagnosis. While the Army medical personnel in Germany, in their medical care and treatment of Booth, had to exercise that degree of care and skill ordinarily exercised by the medical profession in similar cases, it did not have to exercise extraordinary skill and care or the highest degree of skill and care possible. So long as the requisite skill and care were used, a mistake in diagnosis would not constitute malpractice.

The United States Court of Claims found that the medical procedures followed by the Army medical authorities were the standard and accepted procedures for a case such as Booth's. The Court stated: "In view of Booth's long history of stomach trouble, the unchanging nature of his complaint, and the nature of cancer itself in its early stages, there was no reason to suspect the existence of cancer. . . The Army medical personnel, in view of the data reasonably available to them, did not fail to afford Booth the standard and accepted medical care and treatment."



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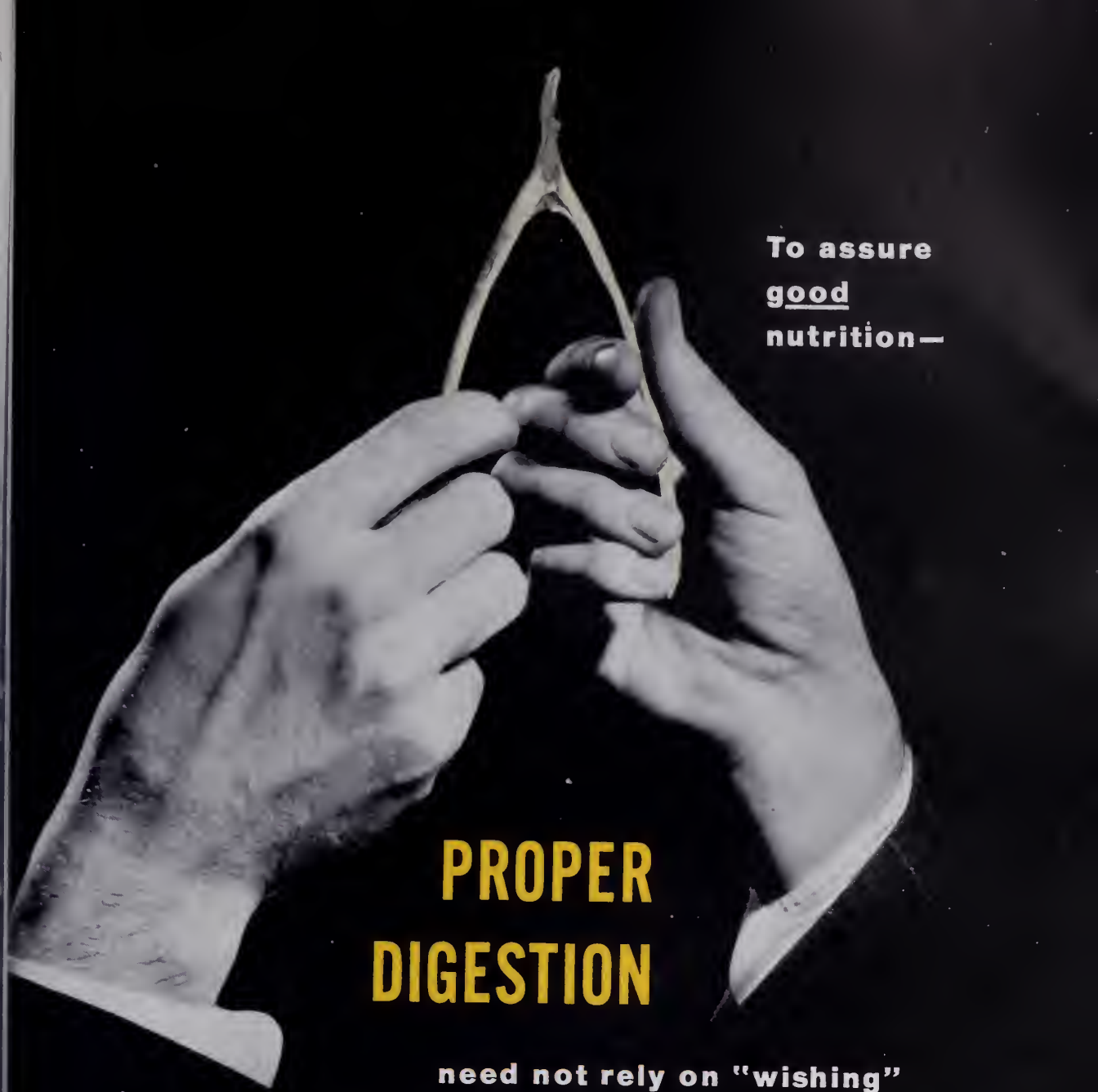
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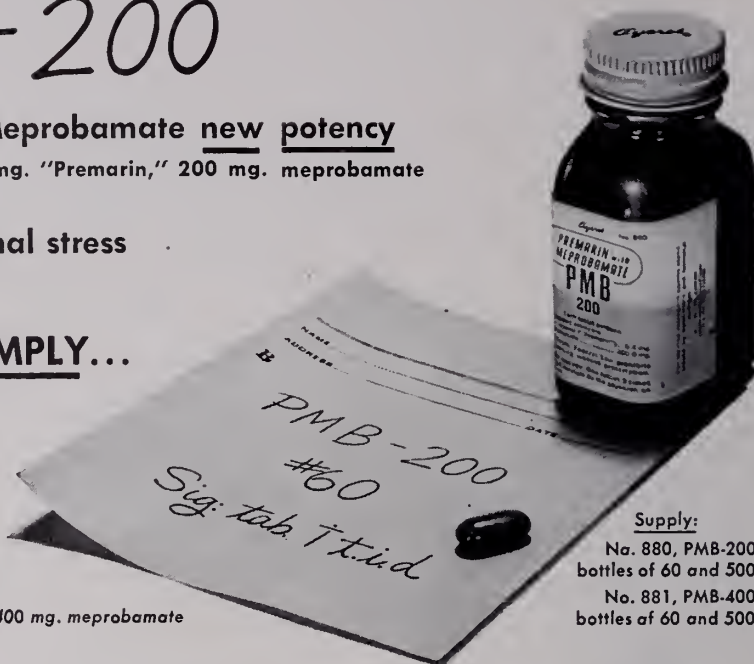
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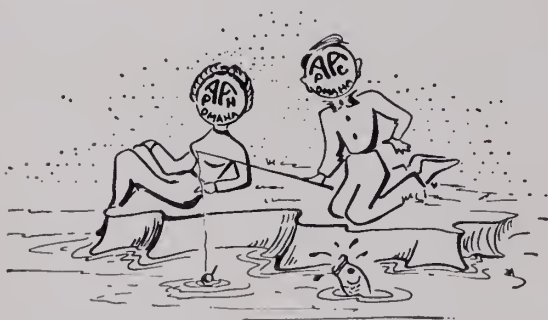
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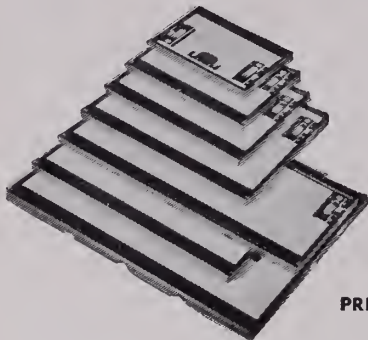
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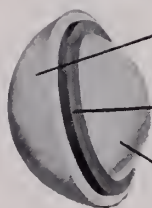


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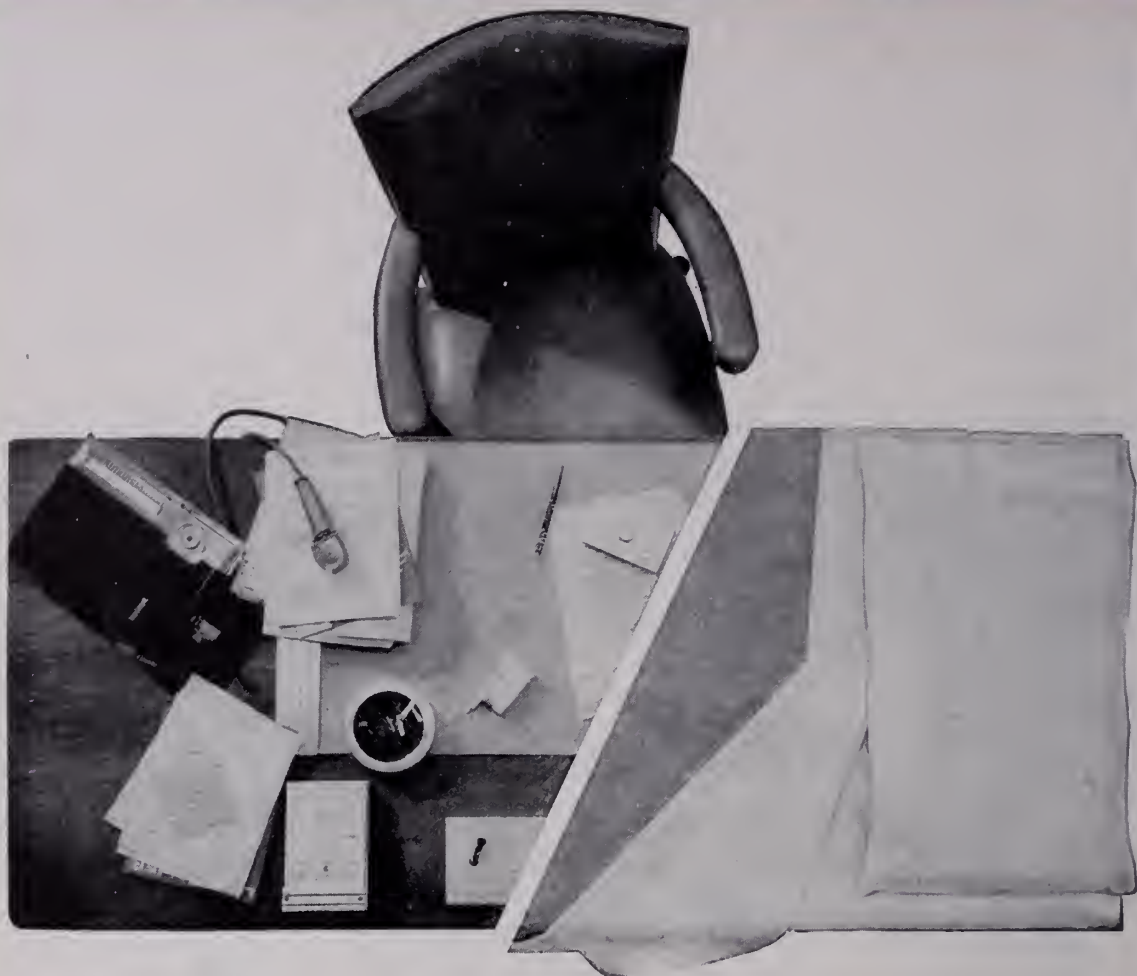
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Official Organ of the Medical Society of Delaware

INCORPORATED 1789

VOLUME 30

SEPTEMBER, 1958

NUMBER 9

RABIES PROPHYLAXIS

Complete Contents on Page iv

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REFERENCES: (1) Schneerson, S. S.: *J. Mt. Sinai Hosp.* 25:52, 1958. (2) Waisbren, B. A.: *Wisconsin M. J.* 57:89, 1958. (3) Ritts, R. E., Jr.; Mao, F. H., & Favour, C. B., in Welch, H., & Marti-Ibanez, E.: *Antibiotics Annual 1957-1958*, New York, Medical Encyclopedia, Inc., 1958, p. 774. (4) Rhoads, P. S.: *Postgrad. Med.* 21:563, 1957. (5) Roy, T. E.; Collins, A. M.; Craig, G., & Duncan, I. B. R.: *Canad. M.A.J.* 77:844, 1957. (6) Hasenclever, H. F.: *J. Iowa M. Soc.* 47:136, 1957. (7) Holloway, W. J., & Scott, E. G.: *Delaware M. J.* 29:159, 1957. (8) Waisbren, B. A., & Strelitzer, C. L.: *Arch. Int. Med.* 99:744, 1957. (9) Derham, R. J., & Rogerson, M. M.: *J. Dis. Child.* 93:113, 1957. (10) Murphy, J. J., & Rattner, W. H.: *J.A.M.A.* 166:616, 1958. (11) Rabe, E. F.: *Pennsylvania M. J.* 61:209, 1958. (12) Rosenthal, I. M.: *GP* 17:77 (March) 1958.

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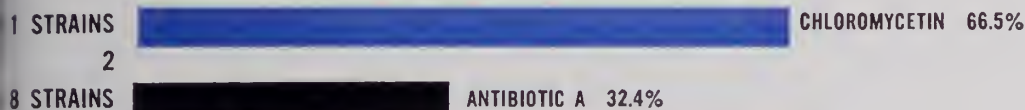


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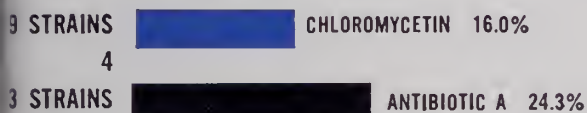
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(1) Hagedorn, A. B.: Proc. Staff Meet. Mayo Clin. **32**:705 (Dec. 11) 1957.

(2) Best, W. R.; Louis, J., and Limarzi, L. R.: M. Clin. North America (Jan.) 1958, p. 3.

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1. Thomas, J. W.: Ann. Allergy 16:128, 1958



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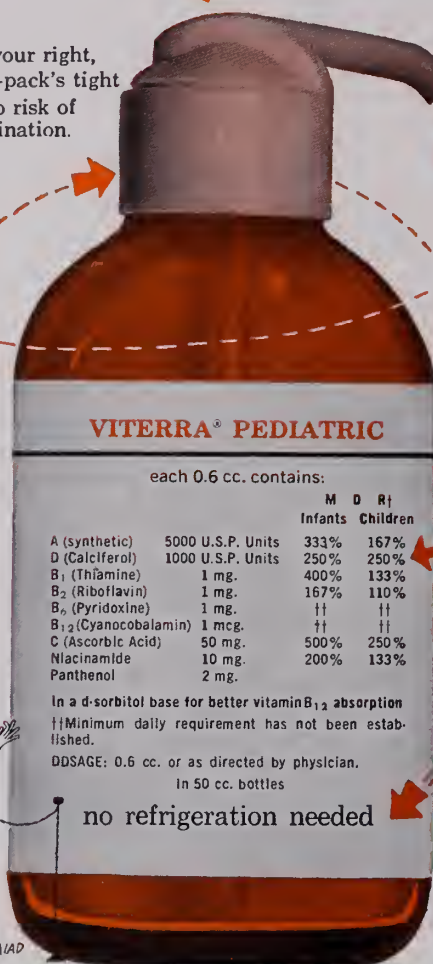
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4 And notice —
no drip, no waste,
no sticky bottle.

6 Let's take a minute
to admire the formula.

7 That means
no hot-weather
loss of potency.

8 Now for a farewell treat, a
taste of delicious, orange-y
VITERRA PEDIATRIC. How will
you have it — in fruit juice?
On cereal? Straight from the
spoon?



VITERRA® PEDIATRIC



Special note to doctors who took this tour:

Problems of over- and under-dosage, spillage, spoilage or leakage disappear with VITERRA PEDIATRIC's new metered Flo-pack. Why not consider these advantages when you recommend a vitamin supplement?



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Division, Chas. Pfizer & Co., Inc. THE WORLD'S WELL-BEING

in all
diarrheas

CREMOMYCIN[®]

SULFASUXIDINE[®]—PECTIN—KAOLIN—NEOMYCIN SUSPENSION

regardless of
etiology



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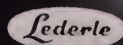
Patient J. I.

Duodenal Ulcer

before PATHIBAMATE

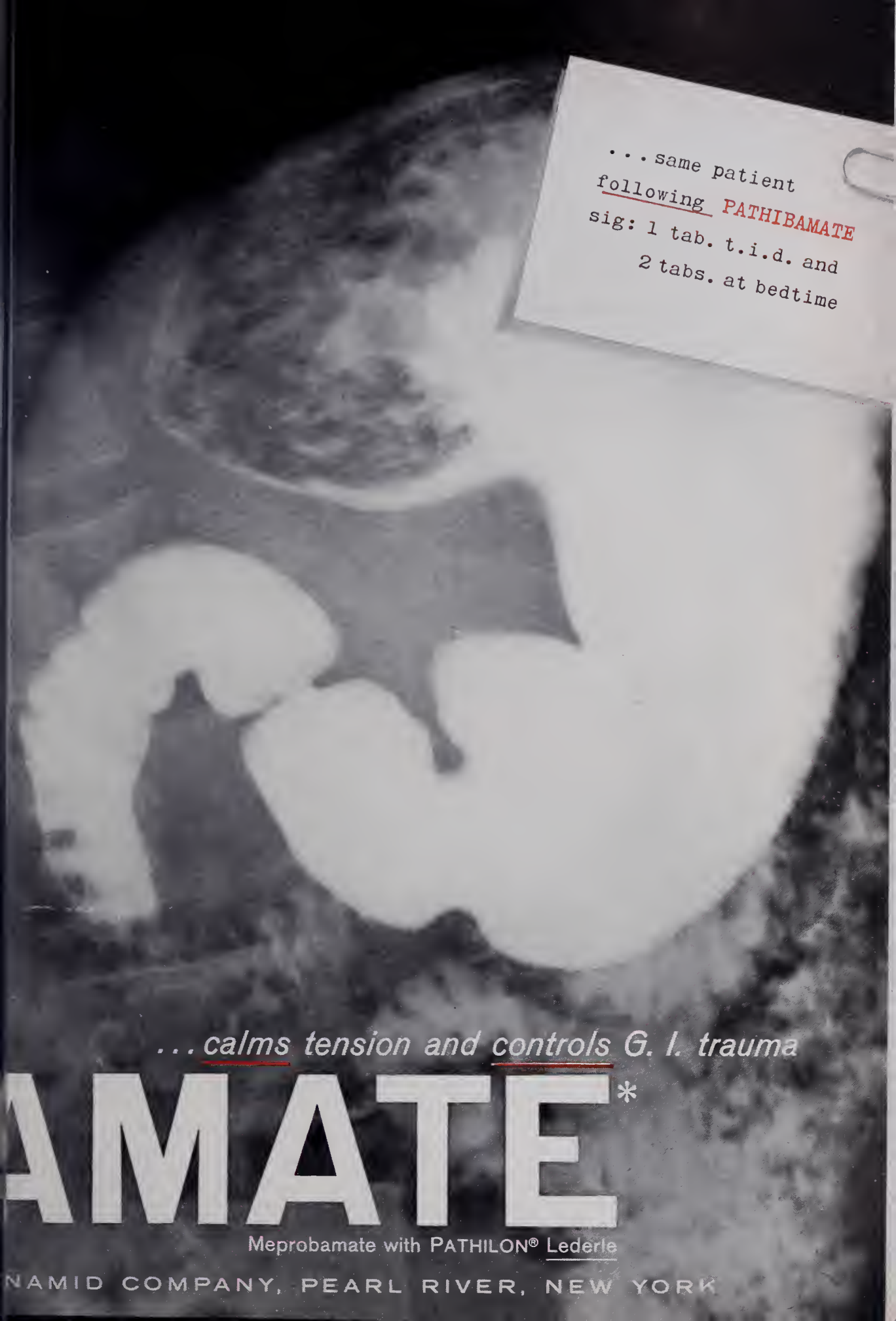


PATHIBAMATE



LEDERLE LABORATORIES DIVISION, AMERICAN

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... same patient
following **PATHIBAMATE**
sig: 1 tab. t.i.d. and
2 tabs. at bedtime

... calms tension and controls G. I. trauma

AMATE*

Meprobamate with **PATHILON®** Lederle

NAMID COMPANY, PEARL RIVER, NEW YORK

New **Neo-Synephrine[®]** Compound

Cold Tablets

for "Syndromatic" Control of
the Common Cold and Allergic Rhinitis

Neo-Synephrine now has three complementary compounds added to its own dependable, decongestive action for more complete control of the common cold syndrome.

The "syndromatic" action of Neo-Synephrine Compound Cold Tablets brings new and greater effectiveness to the treatment of the common cold syndrome.

protection...through the full range of common cold symptoms

Each tablet contains:

for

NASAL STUFFINESS, TIGHTNESS, RHINORRHEA

NEO-SYNEPHRINE HCl 5 mg. First choice in decongestants for its mild but durable action and excellent tolerance.

for

ACHES, CHILLS, FEVER

ACETAMINOPHEN 150 mg. Dependable analgesic and antipyretic

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RHINORRHEA, ALLERGIC MANIFESTATIONS

THENFADIL[®] HCl 7.5 mg. Effective antihistaminic to relieve rhinorrhea and enhance mucosal resistance to allergic complications.

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LASSITUDE, MALAISE, MENTAL DEPRESSION

CAFFEINE 15 mg.

DOSE: Adults: 2 tablets three times daily.

Children 6 to 12 years: 1 tablet three times daily.

Bottles of 20 and 100 tablets.

Neo-Synephrine (brand of phenylephrine)
and Thenfadil (brand of phenylamine),
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Tao*

(brand of tetracycline with glucoSamine)
Capsules / Oral Suspension

designed
for
effective
control of
common
gram-
positive
infections



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THE WORLD'S
WELL-BEING

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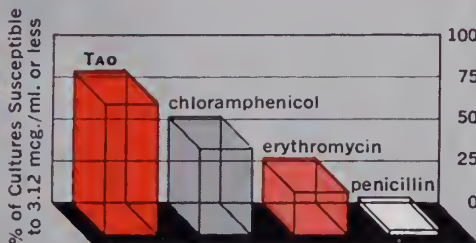
effective ...

CLINICAL RESULTS	adults	children	all Staph infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were *Staph. aureus* and *Staph. albus*. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, *Hemophilus influenzae*.

even
against
resistant
staph^{1,2...}

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.¹



well
tolerated ...

REACTIONS:

(a) adults

Total—9.2%
(20 out of 217)
Skin rash—1.4%
(3 out of 217)
Gastrointestinal—
7.8% (17 out of 217)

(b) children

Total—0.6%
(1 out of 167)
Skin rash—none
Gastrointestinal—
0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus ...

stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation.

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since Tao is therapeutically stable in gastric acid, it may be administered at any time, without regard to meals.
Supplied: Tao Capsules—250 mg. and 125 mg.; bottles of 60. Tao for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: *Antibiotics & Chemother.* (Aug.) 1958. 2. English, A. R., and McBride, T. J.: *Antibiotics & Chemother.* (Aug.) 1958. 3. Wennersten, J. R.: *Antibiotic Med. & Clin. Therapy* (Aug.) 1958. 4. Celmer, W. D., et al.: *Antibiotics Annual 1957-1958*, New York, Medical Encyclopedia, Inc., 1958, p. 476.

Investigator

after investigator report

Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

"Chlorothiazide added to other antihypertensive drugs reduced the blood pressure in 19 of 23 hypertensive patients." "All of 11 hypertension subjects in whom splanchnicectomy had been performed had a striking blood pressure response to oral administration of chlorothiazide." "... it is not hypotensive in normotensive patients with congestive heart failure, in whom it is markedly diuretic; it is hypotensive in both compensated and decompensated hypertensive patients (in the former without congestive heart failure, it is not markedly diuretic, whereas in the latter in congestive heart failure, it is markedly diuretic). . . ."

Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

"Chlorothiazide (maintenance dose, 0.5 Gm. twice daily) added to the regimen of 73 ambulatory hypertensive patients who were receiving other antihypertensive drugs as well caused an additional reduction [16%] of blood pressure." "The advantages of chlorothiazide were (1) significant antihypertensive effect in a high percentage of patients, particularly when combined with other agents, (2) absence of significant side effects or toxicity in the dosages used, (3) absence of tolerance (at least thus far), and (4) effectiveness with simple 'rule of thumb' oral dosage schedules."



In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension,"

Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8: 1, September, 1957.

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the effectiveness of **'DIURIL'**
(CHLOROTHIAZIDE)
in

Hypertension

as simple as 1-2-3

1 INITIATE THERAPY WITH 'DIURIL'. 'DIURIL' is given in a dosage range of from 250 mg. twice a day to 500 mg. three times a day.

2 ADJUST DOSAGE OF OTHER AGENTS. The dosage of other antihypertensive medication (reserpine, veratrum, hydralazine, etc.) is adjusted as indicated by patient response. If the patient is established on a ganglionic blocking agent (e.g., 'INVERSINE') this should be continued, but the total daily dose should be immediately reduced by as much as 25 to 50 per cent. This will reduce the serious side effects often observed with ganglionic blockade.

3 ADJUST DOSAGE OF ALL MEDICATION. The patient must be frequently observed and careful adjustment of all agents should be made to determine optimal maintenance dosage.

SUPPLIED: 250 mg. and 500 mg. scored tablets 'DIURIL' (chlorothiazide); bottles of 100 and 1,000.

'DIURIL' is a trade-mark of Merck & Co., Inc.

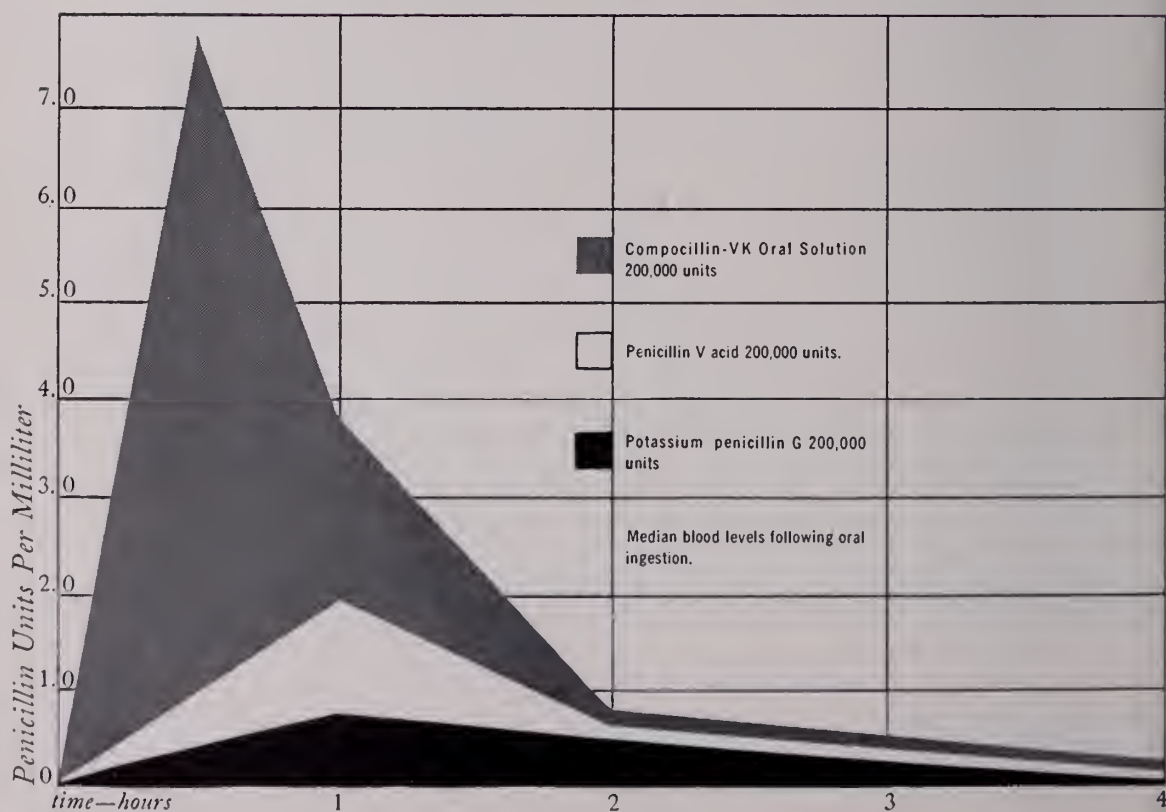
smooth, more trouble-free management of hypertension with 'DIURIL'



Now—from Abbott Laboratories—



Good-tasting, cherry-flavored . . .





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an oral solution of potassium penicillin V



plus the higher blood levels of potassium penicillin V



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Compocillin-VK[®] granules for oral solution

Now, for oral administration, COMPOCILLIN-VK Granules offer you a solution of potassium penicillin V. Developed by Abbott Laboratories, the granules are dry and easily reconstituted with water.

The clear, red solution has a fresh, cherry flavor, is taste-tested and is well-accepted by patients. And they'll get those high potassium penicillin V blood levels (note chart).

COMPOCILLIN-VK is indicated for all infections susceptible to oral penicillin therapy. Also, in treating recurring rheumatic fever and in managing rheumatic carditis. COMPOCILLIN-VK may be used in counteracting complications from severe viral attacks.

The initial recommended dose: In acute infections, the range is from 125 mg. (200,000 units) three times daily to 250 mg. (400,000 units) every four hours. For young children, the adult dose may be reduced in proportion to age and weight. For prophylactic use, 125 mg. (200,000 units) may be administered once or twice daily.

COMPOCILLIN-VK Granules for Oral Solution come in 40-cc. and 80-cc. bottles. Each 5-cc. teaspoon of the reconstituted solution represents 125 mg. (200,000 units) of potassium penicillin V. The dry granules stay stable under ordinary room temperatures. When reconstituted, the solution will remain potent for two weeks under refrigeration.

Abbott

diagnosis: hypertension, moderate to severe

prescribed: **Rauprote** *

(Rauwolfia Serpentina and Protoveratrine A & B Combined)

because immediate lowering of blood pressure is imperative

Rauwolfia Serpentina's gradual tranquilizing and prolonged hypotensive effect combines with faster-acting, more potent Protoveratrine for effective therapy with a minimum of risk. Each of the agents appears to potentiate the other's hypotensive activity and produce beneficial vasodilatation, without ganglionic or adrenergic blockade . . . without direct smooth muscle depression and without deranging those mechanisms which control blood distribution and which normally prevent postural hypotension.

Relief of symptoms is produced rapidly, blood pressure is lowered and tranquility ensues . . . with a minimum of side effects.

supplied: in bottles of 100 and 1000 tablets, each containing 50 mg. Rauwolfia Serpentina and 0.2 mg. Protoveratrine A and B (the chemically standardized alkaloid of *Veratrum Alba*), or on prescription at leading pharmacies



THE VALE CHEMICAL COMPANY, INC. Allentown, Pa.

PHARMACEUTICALS

*Trade Mark

Low Dosage **KYNEX*** for G.U. Infections

Sulfamethoxypyridazine Lederle



Unusual Antibacterial and Anti-infective Properties—More soluble in acid urine¹ . . . higher and better sustained plasma levels than any other known and useful antibacterial sulfonamide.²

Unprecedented Low Dosage—Less sulfa for the kidney to cope with . . . yet fully effective. A single daily dose of 0.5 to 1.0 Gm. maintains higher plasma levels than 4 to 6 Gm. daily of other sulfonamides—a notable asset in prolonged therapy.²

Dosage: The recommended adult dose is 1 Gm. (2 tablets) the first day, followed by 0.5 Gm. (1 tablet) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours.

KYNEX—WHEREVER SULFA THERAPY IS INDICATED

Tablets: Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

Syrup: Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

references:

1. Griebble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958
2. Editorial: *New England J. Med.* 258:48-49, 1958.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

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For every topical indication, a Burroughs Wellcome 'SPORIN'...



OINTMENT: Tubes of $\frac{1}{8}$ oz. and $\frac{1}{2}$ oz. (with applicator tip) for ophthalmic or dermatologic application.

OTIC DROPS: Bottles of 5 cc. with sterile dropper.



OINTMENT: Tubes of $\frac{1}{2}$ and 1 oz. and tubes of $\frac{1}{8}$ oz. with ophthalmic tip.

OPHTHALMIC SOLUTION: Bottles of 10 cc. with sterile dropper.

NEW { LOTION: Plastic squeeze bottles of 20 cc.
POWDER: Shaker-top bottles of 10 Gm.



OINTMENT: Tubes of $\frac{1}{2}$ oz., 1 oz. and $\frac{1}{8}$ oz. (ophthalmic tip).



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Raise the Pain Threshold



WITH **MAXIMUM SAFE ANALGESIA**

Phenaphen with Codeine provides intensified codeine effects with control of adverse reactions.

It renders unnecessary (or postpones) the use of morphine or addicting synthetic narcotics, even in many cases of late cancer.

Three Strengths —

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Also —

PHENAPHEN In each capsule

Acetylsalicylic Acid $2\frac{1}{2}$ gr. . . (162 mg.)

Phenacetin 3 gr. (194 mg.)

Phenobarbital $\frac{1}{4}$ gr. (16.2 mg.)

Hyoscyamine sulfate (0.031 mg.)

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For Speedier Return to Normal Nutrition

Meat...

in Inflammatory Conditions of the Colon

The physiologic depletion accompanying acute infectious and inflammatory conditions of the bowel makes replacement therapy the key to nutritional rehabilitation.

In addition to the loss of important electrolytes, such as potassium and sodium, large amounts of protein are lost in the fluid, blood and exudate from the bowel. In the acute state of such affections, utilization of what protein can be ingested is further affected by increased protein catabolism and by impairment of certain hepatic functions.

Dietary rehabilitation must be carried out within the framework of a diet restricted in fiber and in irritating substances. Foods allowed must be easily digested and appetizingly and attractively prepared to encourage eating.

Tender lean meats—finely ground in the initial diet and later served in a wide variety of appealing ways—can be an important source of the protein and minerals required by the convalescing patient.

Meat fits admirably into the requirements of the permitted diet not only because of its taste, digestibility, and physical characteristics, but also because of its contribution of high quality protein, the minerals potassium, iron, phosphorous, sodium, and magnesium, and all the known B vitamins.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago...Members Throughout the United States

you and your patient
can see the improvement

with

METIMYD[®] Ophthalmic Suspension
prednisolone, 0.5%,
plus sulfacetamide sodium, 10%
Ointment with Neomycin, 0.25%

in blepharitis,
conjunctivitis,
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keratitis,
meibomitis
and other
external eye
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- prednisolone effectively checks inflammation and allergy
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Provides therapeutic quantities of all known hematinic factors

Potent 'Trinsicon' offers complete and convenient anemia therapy plus maximum absorption and tolerance. Just two Pulvules 'Trinsicon' daily produce a standard response in the average uncomplicated case of pernicious anemia (and related megaloblastic anemias) and provide at least an average dose of

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Meets Second Thursday

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JOHN B. BAKER, M.D.

President, Medical Society of Delaware, 1958

PRESIDENT'S ADDRESS*

ROGER MURRAY, M.D.

Current events not only swirl around us but also involve us. As doctors we cannot get away from them by claiming that our only interest is in the sick, and that we cannot be bothered by political, social and economic problems. Certainly we must be interested in what is happening in our own area of health and medical affairs. We are in a social revolution in which the government and the medical profession are drawn closely together. There is an area of legitimate concern by the government for the health and welfare of the people, but each year the government seems to extend that area. Let us look at a few figures from the American Medical Association's Washington office.

This year the average family will pay \$54.61 for the United States government's health and medical activities. Total expenditures in 1956 amounted to \$2,500,000,000 or \$290,000,000 more than last year. It was \$500,000,000 dollars more than the Agriculture Department budget. Many expenditures are necessary and desirable to keep up our public health standards. Money spent for research may pay rich dividends in the future, but it seems that money is spent on medical activities in which the government should not participate at all.

I shall examine briefly some of these activities. I will not use American Medical Association reports but will summarize The Report of the Hoover Commission on Organization of the Executive Branch of the Government. The Hoover task force reviewed all federal medical services and found waste which could be prevented and

suggested that greater efficiency could be obtained. Of the 16 members of the task force 12 are veterans.

Almost one out of every four persons (including over 22 million veterans) is eligible to receive at no cost some medical care from the federal government. The most alarming problem in federal medical services is in the care of veterans with non-service connected disabilities. This is the largest single mechanism that could bring about government controlled, taxpaid, medical care for the entire population.

The original motive of the veterans medical program was to provide care for a veteran who became disabled in the course of service to his country. Over the past 34 years, however, it has developed into providing care for veterans with disabilities that occur after discharge and have no relation to military duty.

The first medical benefits for veterans were authorized by Congress in 1917. In 1923, some beds being vacant, it authorized care for certain Spanish-American War, Phillipine Insurrection and Boxer Rebellion veterans with neuropsychiatric or tuberculous diseases whether service connected or not. This step soon required construction of additional hospital facilities. Acts in 1924, 1933 and 1934 made more liberalized provision.

By the end of 1954 the Veteran's Administration had 170 hospitals, not including contract hospitals, with more than 123,000 constructed beds and admissions of non-service connected cases were almost 85% of the total. Three-fourths of these

*Delivered at the Annual Meeting, 1957.

non-service connected cases were for medical and surgical conditions as distinguished from neuropsychiatric and tuberculous diseases.

During the past 20 years the number of Veterans' Administration beds has tripled and the number of cases treated each year has increased from seven to eight times. The annual cost has increased more than 20 times over and is fast approaching the billion mark. Of the 22,000,000 veterans only 3,500,000 have a service connected disability and most of these no longer require hospitalization.

The federal government has a continuing obligation to care for veterans who have incurred disabilities in service and these patients have a right to the highest obtainable quality of medical care. The 40,000 beds existing in Veterans Administration hospitals in 1933 would have been sufficient to accomodate the highest average daily number of service connected patients in any year from 1933 to date, including the service connected cases from World War II and Korea.

The outstanding need of the Veterans' Administration is a firm legal basis for determination of eligibility for medical care of veterans with non-service connected disabilities. The Hoover task force recommends that the care of veterans with non-service connected disabilities be given during a limited period after discharge from active duty, as are other rights. It suggests 3 years. It estimates if this were done, the number of potential patients with non-service connected disabilities would be reduced from 17,500,000 to about 3,000,000.

If this recommendation is carried out it must be done by Congress and American public opinion. Other countries have covered limited segments of the population and expanded this coverage until there was socialized medicine for everyone. 441 bills affecting the practice of medicine have been introduced in this session of Congress. One of these would provide care for dependents of veterans.

Another group which receives tax supported medical care is the Merchant Sea-

men. The government provides free to the employees of this specific industry, a service which normally is the responsibility of the industry, and gives the employer what amounts to a form of government subsidy. This had justification in the early days of low wages and poor accomodations. But today American Seamen are among the higher paid groups in industry and many health insurance facilities are open to them or their employers. The cost of this care was 14,000,000 dollars in 1954. I do not think that one of the 441 medical bills in Congress provides for the elimination of hospital and clinical service to American Merchant Seamen by the federal government.

The work of our profession can easily absorb all our time and effort, and leave us apathetic toward encroachment by the government into medical affairs. If the medical profession takes its freedom for granted it may be the beginning of the end.

If we are to have influence in Congress, where our destiny will be determined to a large degree, we must take an even greater interest in those who elect the congressmen, i.e. our patients. They will give us deserving support when we need it. To earn this support the quality of service rendered must not be reduced and the personal touch in medicine must never be lost.

In a recent address at the North Central Medical Conference the president of the conference gave his own analysis of the 1957 requirements of the so-called ideal physician. I quote:

"The ideal physician must of course be of fine and scholarly appearance, with great intellectual capacity, of faultless personal habits and inspire the confidence of his patients and the respect of all others.

"He must be active in community affairs, taking his full part in chamber of commerce and service club functions, serve on and advise municipal and other governmental bodies as called upon, be active in local and state political affairs, be a good church worker and attend church frequently.

"He must be available on short notice for papers to local P.T.A. and church groups, service and business girls clubs, and

all other groups and organizations interested in obtaining reliable information on medical subjects. He must of course take an active part in the various youth programs of the community.

"He must work on and contribute liberally and cheerfully to fund raising campaigns for new hospitals, Y. M. and Y. W. C. A.'s, old peoples homes and nursing homes, give liberal support to the church and community chest, and help defray the deficit of the local ball club.

"He must be faithful in attendance at state medical societies, attend meetings regularly, and accept officership and committee assignments eagerly and perform his duties quickly and with great tact and diplomacy.

"He must be faithful in attendance at hospital staff meetings, be ready to give carefully prepared scientific papers, serve on hospital committee cheerfully and efficiently, keep his hospital records complete in all details, and be prompt with carefully prepared lectures to student nurses.

"He must be a good family man with a gracious and tactful wife who abhors mink coats and other vulgar extravagances, and must spend lots of time with his children.

"But above all he must never fail to give his patients the finest possible medical serv-

ice, keeping abreast of medical progress by reading, attendance at medical meetings, and taking frequent post graduate courses. He must be a tireless worker and improve his public relations by spending adequate time with his patients, Answering urgent calls promptly day or night, and by not keeping his patients waiting. This must all most certainly be done for what has been vaguely defined as a reasonable fee."

Trying to do all that seems quite a job, but in all seriousness, it seems imperative to me that we take more part in local and national politics. I realize that such activity is not attractive to many but we must not feel that it detracts from our dignity, that it may hurt our practice or that we may be known as politicians rather than doctors. It certainly has never hurt the professional prestige of George Forrest or Victor Washburn. How much easier the task of our Public Laws Committee would be if we had a physician in the state senate who would be chairman of the Public Health Committee.

With each of us rests the honor and integrity of our profession and may we in unity accomplish our desire to promote the science and art of medicine and the betterment of public health. I believe these objectives may be better obtained if we can retain our freedom from government control.

RABIES PROPHYLAXIS IN MAN

EDWARD F. GLIWA, M.D.*

When a patient with an animal bite presents himself for treatment the physician is confronted with the problem of deciding on the course of treatment which he will pursue. Local treatment should be given immediately. The wound should be thoroughly cleaned and irrigated with soap or detergent and water. Where the site permits some authorities advocate cauterizing

the wound with concentrated nitric acid, while others insist that cauterization is an antiquated preventive measure. A recent study to determine which substances have the best capacity to remove or inactivate virus in artificially contaminated wounds under laboratory conditions revealed that 1 percent zephiran chloride was most effective.¹ With a small incision, especially in puncture wounds, it is advisable to permit

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RABIES Guide For Specific Post-Exposure Treatment Status of biting animal

Nature of Exposure	At time of exposure	During Observation period of 10 days	Recommended treatment (in addition to local treatment)
I No lesion; indirect contact only	rabid	—	none
II Licks:			
(1) unabraded skin	rabid	—	none
(2) abraded skin, scratches and unabraded or abraded mucosa	(a) healthy	healthy	none
	(b) healthy	clinical signs of rabies or proven rabid (laboratory)	start vaccine at first signs of rabies in animal
	(c) signs suggestive of rabies	healthy	start vaccine immediately; stop treatment if animal is normal on 5th day after exposure
	(d) rabid, escaped, killed or unknown	—	start vaccine immediately
III Bites:			
(1) mild exposure	(a) healthy	healthy	none
	(b) healthy	clinical signs of rabies or proven rabid (laboratory)	start vaccine at first signs of rabies
	(c) signs suggestive of rabies	healthy	start vaccine immediately; stop treatment if animal is normal on 5th day after exposure
	(d) rabid, escaped, killed or unknown	—	start vaccine immediately
	(e) wild (wolf, jackal, fox, bat, etc.)		
(2) severe exposure (multiple, or face, head or neck bites)	(a) healthy	healthy	serum immediately; no vaccine as long as animal remains normal
	(b) healthy	clinical signs of rabies or proven rabid (laboratory)	serum immediately; start vaccine at first sign of rabies
	(c) signs suggestive of rabies	healthy	serum immediately, followed by vaccine; vaccine may be stopped if animal is normal on 5th day after exposure
	(d) rabid, escaped, killed, or unknown	—	serum immediately, followed by vaccine
	(e) wild (wolf, jackal, fox, bat, etc.)		

Note: The above schedule applies equally whether or not the biting animal has been previously vaccinated.

free bleeding, thorough cleansing and irrigation. A wound suspected of contamination with rabies virus should not be sutured immediately since closure may contribute to the development of rabies. Local treatment, when feasible, may include the infiltration of antirabies serum into the tissues surrounding the wound.

After preliminary treatment the physician still has a definite responsibility to the patient. He must determine whether any further antirabies treatment is necessary. The following table gives a ready reference and guide for specific post-exposure treatment as recommended by the Expert Committee on Rabies of the World Health Organization.² This table is recommended only as a guide and certain circumstances may necessitate modification.

As one reviews the table it is evident that the condition of the animal at the time of exposure and during the observation period has a definite bearing on the course of treatment. It is important, therefore, that a careful history be obtained to determine the circumstances under which the bite occurred, and all bites should be investigated immediately. Whenever possible, the biting animal should be captured, confined and observed for a ten-day period. The patient should be instructed not to kill the animal if it can be captured. If the animal inflicting the bite was in the early stages of rabies it will show characteristic symptoms or will die during the observation period. In the event that an animal must be killed, care should be taken not to damage the head so that a satisfactory laboratory examination can be made of the brain. Laboratory ex-

aminations are performed by the State Board of Health Laboratory in Dover.

Your local Health Department, in cooperation with the Delaware Game and Fish Commission, and, in Wilmington, the Society for the Prevention of Cruelty to Animals investigates all reported animal bites. A concerted effort is made to locate the animal to place it under quarantine and observation. In order to facilitate this procedure certain specific information should be obtained from the patient and reported to the local Health Department. This should include the name and address of person bitten; a complete description of the biting animal, breed, size and color and name and address of the owner. If the owner of the animal is unknown, every effort should be made to capture and detain the animal until the dog warden can be summoned.

Often the patient is unable to supply all the information requested when he presents himself for treatment. In this case the patient should be instructed to secure the necessary information and relay it to the physician or directly to the Health Department as soon as possible so little time is lost locating the animal in question. When incomplete information is received the quarantine procedure may be delayed or the animal may never be found, making it necessary to subject the patient to the full compliment of anti-rabies therapy.

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HUMAN RABIES PROPHYLAXIS

REPORT OF A CLINICAL STUDY IN DELAWARE

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During the past two years a relatively new human rabies prophylactic agent, HEP (high egg passage) Flury Vaccine, has been studied in field evaluation tests by the State Board of Health in Delaware.** This study was stimulated in part by the occurrence of the most severe epizootic of rabies in domestic and wild animals ever reported in the state.

The vaccine was made available to veterinarians at the 1956 Annual Meeting of the Delaware Veterinary Medical Association, and later was offered to other potentially high rabies exposure groups. From these groups 33 volunteers participated in the study and received the vaccine. Since the development and use of avianized rabies vaccine is well documented,¹⁻⁶ this report deals only with clinical tolerance and the immune response to the vaccine as determined serologically in the 33 vaccinees.

MATERIAL AND METHODS

The Flury Vaccine used in this study was "Rabies Vaccine Modified Live Virus (Chick Embryo Origin)" supplied for investigational use. The vaccine contained streptomycin and penicillin as bacteriostatic agents and was rehydrated with water to a 35% embryo suspension for infection.

The vaccine was administered intradermally in a 0.2 ml. dose on the medial surface of the forearm and was divided between two sites of injection for ease of administration. On the basis of previous anti-rabic treatment the following recommendations for prophylaxis were followed:

1. For persons who had received one or more previous Pasteur treatments a single 0.2 ml. injection was given.
2. For persons who had received no previous Pasteur treatment a series of three 0.2 ml. injections, 5 days apart, was given.

To determine the immunologic response to vaccination with Flury strain vaccine serological studies were made of pre-vaccinal sera on a second sera drawn 30 days following administration of the vaccine and on a third sample when booster injections were given. Titers were determined by a standardized-method serum-neutralization test, using undiluted and diluted (1:100) serum against rabies virus⁷. In addition, local or systemic reactions to the vaccine were tabulated on the fifth day following administration.

RESULTS

Following administration of the vaccine all of the vaccinees experienced a mild to severe erythema and pruritis at the site of injection. The area of erythema varied from 5 to 15 cm. and persisted from 12 to 48 hours. Five vaccinees complained of a moderate induration at the injection site and a slight axillary lymphadenopathy which lasted from 1 to 3 days.

The results of the serologic tests are illustrated in bar graph form in Figure 1. On pre-vaccinal examination the serum from four persons who had received Pasteur treatment within the past 2 to 22 years was found to have an immune titer. One individual who had received only a partial course of Pasteur treatment tested non-immune. Of the twenty-nine not previously treated, twenty-eight were non-immune, ex-

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**These studies, which are part of a series involving veterinary personnel throughout the United States, were conducted in cooperation with the Medical Research Section, Lederle Laboratories Division, American Cyanamid Co., Pearl River, New York and the U.S. Public Health Service, Communicable Disease Center, Atlanta, Georgia.

SUMMARY OF SEROLOGIC FINDINGS BEFORE AND
AFTER THE PROPHYLACTIC ADMINISTRATION OF
FLURY VACCINE TO HUMAN VOLUNTEERS

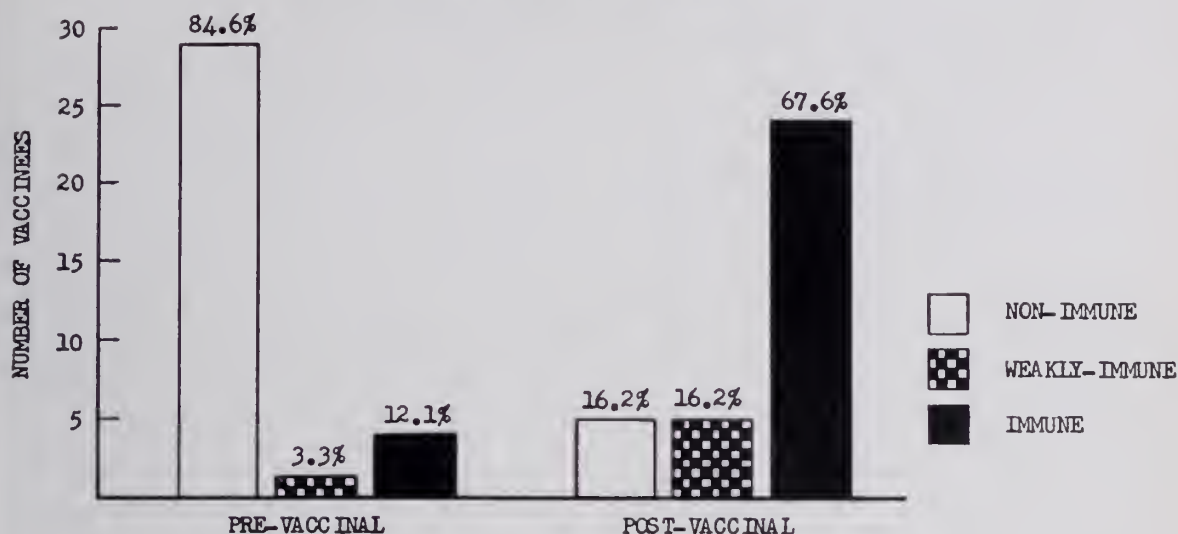


Fig. 1

hibiting no pre-vaccinal antibody. However, the serum from one untreated person was unexplainably weakly immune.

Following vaccination, 23 (67.6%) of the vaccinees were found to have immune titers. This included the five persons who previously had received Pasteur treatment. Three of the vaccinees, although non-immune on the 30 day post-vaccinal examination, attained an immune titer following the booster injection after 11 months. Ten vaccinees did not avail themselves for a booster vaccination, therefore, on the basis of the 30 day sampling five (16.2%) remained in the weakly immune group and five (16.2%) produced no demonstratable anti-body. This included the individual who showed weakly immune serum prior to vaccination.

DISCUSSION

Prophylactic immunization against rabies appears to be a practical solution to the problem of exposure or re-exposure in high risk groups. For this purpose the Flury strain vaccine seems particularly well adapted. Summarizing the work available on this vaccine WHO states, "in an adequate number of subjects it has been found that a single dose of chicken-embryo vaccine given many years after previous immunization re-

sulted in a prompt and significant antibody rise. Furthermore, there is a good evidence that 3 intradermal doses of chicken-embryo vaccine given 5 days apart prepare the individuals to respond, at a later time, to such a booster dose given several months after the preparatory doses. There is reason to believe that from the immunological standpoint a similar preparation and booster effect may be expected from any potent rabies vaccine."⁴

Since the duration of immunity has not been completely determined at this time it is suggested that on subsequent exposures a booster dose be given in the case of a mild or moderate exposure and, in the case of severe exposure, a second booster dose one week later.⁴

That the findings in the Delaware study do not compare favorably with the results obtained in other studies may be explained in part by the relatively small group of vaccinees and the normal vagaries of any biological product.⁸

SUMMARY

A group of 33 individuals in potentially high rabies-exposure occupations were vaccinated with an experimental HEP Flury strain prophylactic rabies vaccine. The vac-

cine was generally well tolerated except for minor to severe local reactions at the site of injection. Twenty-three of the 33 persons (67.6%) were shown to have immune antibody titers on examination of post-vaccinal sera by serum neutralization tests.

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EARLY RECOGNITION OF CEREBRAL PALSY

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DEFINITION:

A general definition of cerebral palsy is: abnormal control of the motor system of cerebral origin and absence or restriction of motions or excessive motions and variations in directional control, resulting usually in slow physical development. Early diagnosis depends on familiarity with the normal child's physical development. The age at which the family first notices the condition is usually about 8 months of age, probably because the child cannot sit alone, holds one fist clenched or because of some other abnormal characteristic. This lateness of recognition must be considered in the adoption of children. I have seen a number of cerebral palsied children who were adopted under one month of age after a careful examination by a well-qualified physician, and who were, at that age, pronounced normal. Early recognition is, therefore, urgent.

The family history, number and order of pregnancies, age and health of siblings and age of parents at the birth of the child must be investigated. Cerebral palsy is rarely familial. It bears no relation to congenital syphilis. History of the pregnancy with special regard to any illnesses or unusual conditions, particularly in the first three months, should be carefully investigated. Other predisposing conditions are possible toxoplasmosis, Rh and other blood incompatibilities, prematurity and preeclamptic toxemias.

The birth history also is important. Factors which might predispose toward cerebral palsy and which should be noted are prolonged or rapid birth, drugs used during labor, difficult instrumental deliveries, version and extraction, cord around the neck, failure of the child to breathe with resultant anoxia or hypoxia, inhalation of amniotic

fluid or meconium, premature rupture of membranes with dry birth and abnormal birth positions such as transverse or breech positions.

The post-natal condition of the baby is significant. Difficulties with starting to breathe, failure to cry, weak cry, extreme sleepiness, inability to suck necessitating use of a medicine dropper or Breck feeder, cyanotic spells, jaundice, extreme pallor, opisthotonic tendencies, tremors and convulsive episodes are all worthy of note.

Cerebral palsy can, of course, develop post-natally as a result of febrile convulsions, dehydration, falls on the head, pertussis under the age of three months, post-exanthematous encephalitis and other conditions more dangerous to a baby under three months than to older children.

In the examination of the baby, general appearance, muscle tone (either increased or decreased), ability to hold up the head, weakness of the trunk muscles and general nutrition are essential points.

A careful eye examination must be made noting nystagmus or strabismus, corneal opacities, congenital cataracts, retrolental fibroplasia and optic atrophy, any of which are seen frequently in cerebral palsy.

Abnormal tongue motions such as the reversed swallowing wave, making sucking difficult, are of considerable significance. The position of the arms, held extended and internally rotated with clenched fists or inability to keep the thumb out of the palms, are suspicious signs. The tonic neck reflex (extension of the arm when the head is turned to the same side with flexion of the opposite arm) is normal up to three months of age, and so is not an *early* sign. But persistence of this reflex in an older child is a pathological reflex. A tendency to arching the back as in opisthotonus is also definitely an indication of pathology in the nervous

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system. This sometimes is severe enough to result in umbilical or inguinal hernia. In the legs, marked frog position and absence of normal reciprocal kicking are early signs. The tendon reflexes are not trustworthy in small babies. There is great variation from absent to hyperactive responses in normal children, but when there is definite variation between the two sides of the body, one should be suspicious. The Babinski is variable even in the normal child. There are, of course, many other signs of cerebral palsy such as balance loss, athetoid motions, spasticity, etc., seen in older children, but they are not often apparent in the child under three months.

Cerebral palsy can be a symptom of other conditions when it is a part of a total entity rather than an entity in itself. Certain brain tumors may affect motor areas and produce a cerebral palsy as one of the symptoms of the brain tumor. This must be kept in mind when a cerebral palsy develops in a previously normal child.

Delayed physical development may be a sign of mental deficiency. It is difficult in a baby to distinguish this from a physical retardation alone, due to the ataxic type of cerebral palsy with a consequent delay in balance. The decision is not difficult in older children, but in the baby, it would be necessary to trace the order of development of motor patterns. The mentally defective child would carry out the motor development patterns in the normal order but at a delayed rate. If the condition was on a physical or motor disturbance basis the order of acquisition of these patterns would be distorted.

The differential diagnosis of cerebral palsy in babies would be based on familiarity with an extensive list of abnormalities. If these abnormalities are of severe degree the problem is easier, but when they are of mild degree they may show similarities. I shall not describe these conditions but shall list them for reference to standard text books if they are suspected.

Developmental defects would include the skeletal system as well as muscular defects

and include various etiologies, such as Thomsen's or Morquio's disease. Others are Tay-Sach's and Oppenheim's disease, Herler's Syndrome, microcephaly, cretinism, mongolism, achondroplasia, chondrodys trophy, arthrogryposis and congenital deformities, such as club feet (which sometimes are confused with spastic paraplegia when it involves the feet). Tightness of the legs in adduction in dysplastic hips must be distinguished from spastic paraplegia.

In the muscular system a differential diagnosis must be made from amyotonia congenita, myotonia (Thomsen's disease), myaesthesia gravis, early poliomyelitis and others.

Not many of the degenerative diseases begin in babies but among these might be Wilson's disease (hepato lenticular degeneration) or various types of progressive muscular atrophy (Arran-Duchene, Charcot-Marie-Tooth, Landousy-Dejerine and the dystrophies).

Deficiency diseases affecting metabolic balance would include renal rickets and other Vitamin D resistant types of rickets and probably dystonia musculorum progressiva.

Failure of a child to develop at an expected rate during babyhood is sometimes due to unsuspected blindness or deafness.

There are, of course, many other conditions to consider but this list represents a suggestion as a basis for study.

SUMMARY

Early recognition of cerebral palsy is necessary in order to begin treatment as early as possible. It also is important in connection with early adoption of babies and for future planning for the child. The history of the family, pregnancy and details of the birth are significant. Detailed and careful examination of the child and comparison with the normal gives added information. The differential diagnosis from musculo-skeletal defects, deficiency diseases and degenerative diseases is discussed.

SOME CHANGING CONCEPTS IN MENTAL RETARDATION

FRED A. STONESIFER, PH.D.*

The area of mental deficiency has experienced revolutionary changes in the past ten years. Where formerly workers in that area were almost a group apart, now it is hard to think of any program in a clinic, local, state or national government agency where some consideration is not given to mental retardation. This is not merely a matter of humanitarian interest. There is a conviction that those who are less well endowed intellectually than others have a vital contribution to make to our economy and society generally. There are many areas into which the retarded person can be fitted properly to perform certain jobs. In fact there are some tasks which seem to be particularly well adapted to the person who can and will do a tiresome, routine job day after day and do it properly. Many of these jobs are of little interest to the more capable members of our working forces. As has often been quoted, much of this world's work would not be done were it not done by a retarded person¹.

EMPLOYMENT TRAINING

One of the most striking developments in the welfare of the retarded person is that of employment opportunity. The sheltered workshop idea has received emphasis over the past several years. This program is not only for the capable retarded person who can be trained for outside employment, but also for the seriously retarded individual who requires close supervision if he is to attain any kind of independent or semi-independent living. Public schools and state institutions are aware of the need to train the capable, but even there, such programs have not been successful in training large numbers of this group for vocational placement. Frequently, employment was ob-

tained largely on the basis of efforts of individual parents or interested employers or workers in the area. A large proportion of mentally retarded persons has not been absorbed in any labor pool.

With the advent of the sheltered workshop increasing numbers of this group are given training and employment, and industry finds itself benefiting from the work such members perform. It is wasteful for industry to have a well trained worker do a simple, routine job if it can be simplified so that a retarded person can do it. Industry effects a more economical operation and the retarded person benefits. Thus, the whole economy is enriched. This is as it should be, for the aim of the workshop program is not to operate on a "do-good" philosophy but to offer a competent workman on a competitive basis. It feels that such a policy is better for its own operation and for industry, which will get the service for which it is paying. While the workshop is operated for the benefit of the retarded otherwise handicapped individuals, the ultimate aim of the experience is to teach the worker to be useful according to his capacity, and to learn the degree of responsibility of which each is capable. The workshop is interested in providing income, but its goal is to train and teach the worker to be a responsible and contributing member of society.

Less than two years ago Opportunity Center, Inc., a sheltered workshop for mentally retarded and physically handicapped patients, was established in Wilmington. It has grown steadily in the number of people it serves, as well as the variety of workers it provides for the community. A program of this type might be expanded to other areas of the state. Business men and indus-

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trial concerns near Dover have indicated interest in such a plan.

EDUCATION

Since the State Board of Education has assumed responsibility for providing educational background for a large section of our retarded population², an increasing number will get desirable training for the first time. It is desirable that children be educated or trained to whatever extent they are capable as part of the state service. Retarded children require additional facilities, a separate program and specially trained teachers to work with them. They have problems different from the usual student. However, they need understanding, and will benefit by training or education to become useful citizens. This does not mean that usefulness is the only criterion by which services and opportunities should be available to our population. There are many reasons why it is necessary to provide services, facilities, and opportunities for an individual who will not make a return measurable in dollars and cents. These reasons are so apparent that it does not seem necessary to elaborate further. Suffice it to say that in providing education or experience in living for retarded children, we not only are providing for them but also are benefiting ourselves and society as a whole. That which may appear to be a humanitarian motive may, in reality, be a necessary practice in our social order and economy.

RECREATION AND SOCIAL TRAINING

Two services which may be established specifically for the retarded patient are recreation and social development. Everyone likes fun and he is no exception. The retarded person must have relief from the cares of the day, and through relaxation and change in his environment he will be a more productive and adequate person. This is especially true of the older retarded individual who is capable of some responsibility and who is able to have a limited number of recreational and social outlets. There has been an attempt at establishing a program of activity for these people in some states. Centers have been founded

where supervision is available and social and recreational activities are carried on. Programs have been geared to the interests and levels of the retarded participants and evaluation has been encouraging. This seems to be a worthwhile activity which could be developed more fully in Delaware.

Some interest has been shown in educational programs for the adult retarded patient. This might be carried on in connection with the recreational program. Where a community center is established with a suite of rooms, various activities and interests can be developed. Many retarded adults feel the need for further education since training and schooling opportunities have been limited in the past. Hartford, Connecticut is carrying on such a program at this time³.

RELIGIOUS TRAINING

Many churches are experimenting with religious instruction for the mentally retarded and some of the state schools have children under religious instruction⁴. Local churches also are offering a similar kind of training. This is not an attempt to make religious leaders of retarded people but to offer them another aspect of life which may be a means to a richer and fuller experience. Several such classes are being operated in the Wilmington area. During the past summer the Aldersgate Methodist Church conducted a daily vacation bible school class for "trainable" retarded children⁵. Doubtless, similar classes could be made available with great benefit in other areas where there is a concentration of population to support such an undertaking.

FAMILY GUIDANCE

In the area of clinical services, too, thinking has changed. Formerly, families were advised to place a retarded child in an institution. This advice is seldom given today. Instead, after evaluating the child's limitations and potentials and discussing all available plans for his care, the family itself makes the choice as to where and how they want to rear the child. Automatic assignment of an infant to an institution because of mental deficiency is a presumptuous un-

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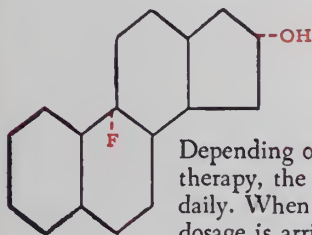
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dertaking. Any plan for a retarded infant or child should be made, having in mind not only the best interest of the child but also of the family. No one but the family can make such a decision.

Today it is the custom for the retarded child to grow up in his own home, be loved by his family, participate in the social activities of the family and have school training and employment. These things are dependent upon the capability of the retarded child just as for the normal child.

However, for a child who is not doing well at home boarding home care might be preferred. This is a new practice which attempts to provide home and family care to a child whose own home is inadequate. The foster home which will take a retarded child is not easily found, but the difficulty of providing a service should not be the basis for abandoning its use if such service is indicated.

When a family is confronted with the problem of a member who is said to be mentally defective or retarded, there is a period of anxiety, tension and confusion. Advice is given on all sides. The family is offered conflicting information according to the bias of the advisor. Shame, guilt and sometimes disgust are parts of the emotional conflict. Such a crisis requires calm, clear thinking. Immediate action usually is not required. Time should be taken to learn of the problems and as calmer moments are reached, the severity and intensity of the crisis will be lessened, and decisions can be made in a manner that will satisfy the best interest of everyone.

Another time of stress for the family and child is when school is considered. It is apparent that regular classroom procedures will not be suitable for the child, yet training is desirable. The questions are: What kind of training should be given? Where is it available? How much can the child absorb? What are its limitations and potentials? If the parents are familiar with the capabilities of the child, there will be less anxiety at the prospect of school. Both child and parents can feel more comfortable if early information concerning realistic goals

is available. By the time the child is six years old, the attitude of the parent has established the position of the child in the family and neighborhood. When the child leaves the home to go to school the community knows what to expect from the child. The child, in turn, knows how he is expected to behave away from home. Thus, he has a start towards social awareness. He will be a happier person if the setting in which he is to live has been prepared for him in an understanding way.

PROGRAM FOR THE MENTALLY RETARDED

The Program for the Mentally Retarded of the State Board of Health is prepared to offer services to families with any of the problems pertaining to a retarded child. To many people, a psychological examination is the single most important criterion of mental deficiency. It is true that many things are based on one's intellectual efficiency, but social development, behavior and adjustment to other people and to the community are also important. A psychological evaluation will give the family information about all of these things. Possibly more important for the family, however, may be an opportunity to discuss the child and make suitable plans based upon his capabilities. Talking over a frightening and traumatic situation with someone who is not directly involved in it and who is relatively uncritical, is helpful. Psychological counseling is available for such purposes. This office is interested in helping the family arrive at a solution which will be best for all involved. The ultimate solution is the responsibility of the family but the concern of the state program is to see that adequate information is available and that decisions are reached as nearly as possible on an intellectual rather than an emotional basis. Those associated with this program believe that the most helpful service it can offer at the present time is that of personal counseling with parents who have retarded children.

SUMMARY

This paper deals with some of the changing concepts in the care of the mentally retarded child. It recognizes the fact that

standards are not yet established so there is complete agreement as to what constitutes a retarded child or ways with which he can be dealt. Nonetheless, the feeling is prevalent that the retarded child should enjoy as many experiences of culture as is possible. A retarded individual is not a simple edition of the normal adult. He must be understood in his own right as an integral part of our culture. If we are to use him to the best possible extent we must plan to adapt his abilities to the needs of society.

If the retarded person is to be useful he must be trained or educated. It is no reflection on the individual if society does not

furnish him the means for development. When he is taught to live as competently as he is able some work can be expected of him, both for his own benefit and for society. We will benefit from the productive efforts of a retarded person to the extent to which we help him develop his inherent abilities and capacities.

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AN EVALUATION OF RADIATION TOLERANCE LEVELS

DONALD B. AULENBACH, Ph.D.*

The passage of the Atomic Energy Act of 1954 enlarged the opportunities for peacetime uses of atomic energy. However, this increased dispersion of radioactive materials for peacetime use automatically increases the potential radiation exposure, either directly or indirectly, to individuals. From the public health standpoint¹ it is necessary to consider exposure to increasing radioactivity from both natural and man-made sources. Natural radioactivity is not recognized as a limiting factor but, there is increased interest in the background radioactivity in relation to health aspects of increased radiation. Radioactive background in natural waters is in the range of 10^{-9} to 10^{-6} microcuries per ml. This background is being raised gradually by atomic detonations and it fluctuates from day to day from natural factors. Maximum permissible levels for some isotopes fall within these ranges. Thus, it is easy to confuse the background radioactivity with discharges from an atomic industry.

Consideration is being given to standards based on total exposure from both artificial and natural sources rather than from additions to the background alone. Constant efforts must be made to evaluate individual situations in terms of total radiation exposure to the population and economic consideration. The growth of nuclear industry, medical, and military applications, when compared with current health standards, justifies an alert attitude on the part of industry and governmental agencies.

In dealing with and handling radioisotopes the ideal objective is to retain absolute control of radioactive waste materials as near as possible to the source of production.² Since this is generally impossible the practical goal is to prevent damage to human bones and tissues and, in some instances,

to prevent economic waste. This goal may be reached by the judicious application of the criterion that external and internal dosage to plant personnel shall not exceed 0.3 roentgen equivalent, man (rem) per week, and its corollary that the concentrations of radioactive materials in air or water shall not exceed the published maximum permissible concentration (MPC) values. In the case of continued exposure and/or release of contaminant beyond the plant area, it may be desirable to use $1/10$ the MPC values. Actual limiting concentration should be determined by the composition of the individual radionuclides present. In lieu of this, the maximum level of 10^{-7} microcurie per ml. may be used for mixtures of radioisotopes. By showing that the more critical radionuclides are not present the permissible concentration of radioactive materials may be raised by a factor of 100 or more over the presently accepted MPC value of 10^{-7} microcuries per ml.

Strontium is a major concern since it is deposited in the bone structure of man where it remains radioactive for many years. It has a physical half-life of about 20 years but the slow rate of elimination of this element from the body results in a biological half-life of 10.7 years.

Standards are not greatly in excess of natural background levels. Standards for specific radioisotopes refer to total amounts rather than to additions to the natural background. In order to apply standards properly it is necessary to determine the normal background which must be obtained before contamination is permitted.

Experimental research is still in full force to determine the take-up of radioactive material by living organisms and the physiological effect upon humans.³ Therefore, standards established should be subject to constant revision. A handbook pertaining

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thereto has been prepared by the National Bureau of Standards.⁴ These standards are for continuous lifetime exposure rather than for short term discharges or concentrations. The National Committee on Radiation Protection has stated in this handbook the following excellent philosophy: "Because of the many uncertainties involved, the Committee recommends that every effort be made to keep the concentrations of radioisotopes in air and water and in the body to a minimum. The goal should be no radioactive contamination of the air and water and of the body if it can be accomplished by reasonable expense and effort. If such a goal cannot be obtained, the average operating levels should be kept as far below these recommended values as possible, and not above them for any extended periods of time."

The concentration of radioactivity in waste streams receiving radioactivity from hospitals, universities etc. is in the range of 10⁻⁶ microcuries per cc.⁵ This is not sufficient to endanger sewer workers, plumbers or other maintenance personnel or to cause any injury to bacteria. To receive the maximum permissible weekly radiation dose the worker would have to be completely immersed for about 9 minutes in a waste containing 0.1 microcurie per cc. In all cases of record the radioactivity of raw sewage receiving radioisotopes from these sources is even lower than the level considered safe for potable water.

The following is an example of standards for the disposal of radioactive waste into public sewers:⁶

1. The regulatory agency must authorize any disposal of licensed radioactive material. Licensed material may be disposed into the sewers provided that the material is soluble.
2. Radioactive levels include the following: strontium 90 or polonium 210, not to exceed 1 millicurie per million gallons; iodine 131 or phosphorous 32 or any radioactive material having a half-life of less than 30 days, 100 millicuries per million gallons; any other radioactive material, 10 millicuries per million gallons.
3. Dilution of radioactive isotopes with

stable isotopes of the same element and in the same chemical form may be discharged so long as they are diluted and homogeneously mixed. In addition, the radioactivity must not exceed 300 millirems per week. This latter regulation is also satisfactory for burial in soil or in the ocean.

Tolerance levels were derived⁷ to establish maximum permissible levels of radioisotopes for single and chronic exposures. Exposure to the gastro-intestinal tract frequently was found to be critical. From examination of bone marrow researchers have suggested that the tolerance dose for inhaled radon 222, plus its daughter elements, should be 10 to 100 times lower than the present value based on gamma ray exposure.

The major hazards to personnel⁸ are from inhalation of both alpha and beta emitters. It was found that the rate of elimination of thoron daughter elements from the human lung was insufficient to reduce radiation hazards materially. No excess damage from inhaled barium radioactive sulfate containing S35 was found.

Most states depend on the health and safety regulations of the AEC or the recommendations of the National Committee on Radiation Protection, National Bureau of Standards. The State of Delaware plans to use its newly purchased radiation detection equipment to establish background levels as soon as possible. This information is basic to the control of any radioactive discharges. It is anticipated that following the radiations recommendations above, with proper interpretation, will result in an environment safe for all mankind.

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DOES YOUR PATIENT HAVE A SOCIAL PROBLEM

BETTY HUTCHINSON, M.A.*

Traditionally, a doctor is not only the person to whom we look for help in time of illness and physical need but also the person to whom we turn for advice and help with problems that may not have to do with a specific ailment. This is particularly true of the general practitioner who knows the problems, concerns and conditions of the families under his care as he treats the ills of his patients through the whole gamut of life experience.

Modern medicine, with its emphasis on the whole individual and the interrelatedness of social, emotional and economic factors with health and disease, places the physician in a position of having to take into consideration these factors if the patient is to be adequately served. Every doctor is aware of social problems which are the result of, associated with or the cause of the complaint that brings the patient to his office. He has dealt with these problems in the course of his doctor-patient relationship and frequently has utilized sources of help in the community.

Illness disrupts the individual's usual routine of life and requires adjustments in family living, loss of time from work or school and social relationships. It may mean learning a complete new way of life. Some patients are able to make the necessary adjustments. The family can handle the social problems arising from the illness particularly if it is of short duration. Other patients do not have the ability to deal with the problems that face them. They may not have the necessary financial resources or family or friends who can help them through the crisis of illness.

The doctor always has advised about problems presented by patient and usually the patient tries to follow the doctor's advice. To the patient the doctor represents

authority, both feared and liked. And although the patient may not follow his recommendation or accept his advice, what the doctor says has a profound impact on him. Whether or not the patient seems to be following the doctor's advice, the positive relationship he has with the doctor can be a source of strength and help to him in coping with his social problems.

Experience with patients has demonstrated to this social worker that the doctor can be helpful to his patient in the following ways:

1. By giving the patient an opportunity to know about his condition in terms he can understand; a chance to have his questions answered however foolish they may sound.
2. By giving the patient a chance to discuss his feelings and explain his difficulties in carrying out treatment so that the doctor can make suggestions that may minimize the difficulties.
3. By giving recognition to the patient that it is sometimes difficult to carry out recommendations and that he has done well when he has.
4. When families seem to be interfering, lacking in understanding or not giving the care a patient needs, by holding a family conference in which all members can get the same information and talk over the problem.
5. By referring the patient to community resources, if available, for financial assistance, marital counseling, adoption services, placement in institutions and foster homes or educational and rehabilitation services.

It is in this last aspect that social workers and social agencies may be helpful to doctors in dealing with the social problems of their patients. Doctors may not have

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time to deal with social problems and may wish to avail themselves of the community's sources of help. Many problems can not be handled by the doctor and requires services, resources and professional social work skills provided by community agencies. The State of Delaware has a variety of public and voluntary social agencies. Workers and staff of these agencies share with doctors and other health and welfare workers a concern for people and welcome the opportunity to work with physicians in locating appropriate resources and services for patients. Doctors in the Wilmington area are fortunate in having many agencies readily accessible. Downstate, resources are not so plentiful or accessible, and many families who need social services have none. They are dependent for help and advice from doctors, nurses, ministers, teachers, community organizations and the few social agencies set up to serve specific groups of people.

While it is impossible to list all social agencies and their services, some of the more common types of social problems that come to the attention of doctors and community sources of help are discussed.

1. Patients who do not follow medical recommendations. Some patients do not follow the doctor's recommendations, thus undoing or negating the knowledge and skills he makes available to them. This is particularly distressing when the patient is a child and is dependent on his parents for his well being. Not following medical recommendations may range in importance from not keeping a followup appointment to refusing life-saving surgery. Often the doctor can discover what the problem is by giving the patient an opportunity to express himself and make necessary adjustments. At other times, the reason is more deep-seated and complicated and it requires time and effort to find the cause of the difficulty and to modify the patient's attitudes and ways of dealing with his illness. In this area, social workers can be helpful.

Hospital social service departments can work with patients at the request of the doctor if the patient is under in-patient or out-patient care of one of the following hospitals: Wilmington General, Delaware, Me-

morial, Emily P. Bissell, Delaware State Hospital, Hospital for the Mentally Retarded and the Veterans Administration Hospital. These hospitals provide social services to patients and their families. The social worker will interview the patient and his family to determine the cause of the problem and to try to help them think through what adjustments they can make in order to carry out medical recommendations.

If the patient is not under care of any of these hospitals, a Public Health Nurse of the State Board of Health may be helpful by visiting the home of a patient at the request of the doctor. She can supervise the carrying out of medical recommendations and try to help the family with problems that interfere with the patient's medical care. Consultation on social problems is available to the Public Health Nurse from the Medical Social Consultants of the Division of Maternal and Child Health and Crippled Children's Service of the State Board of Health.

2. Problems of unmarried mothers. Usually, the unmarried mother and her family, depending upon the cultural background, are distressed, often to the point of panic, about the situation. The unmarried mother's decision about her baby has deep repercussions both for her own future and that of the baby. She has a right to make her own decision as to whether or not to keep the baby but frequently she is so upset that she can not make an adequate decision without help. For the girl who needs to keep her situation confidential, the Florence Crittenton Home in Wilmington provides a haven during her pregnancy as well as help from a professional social worker in reaching a decision and making future plans for herself and the baby.

There may be some situations where the unmarried mother's family, friends and community are well aware of her condition and keeping her pregnancy confidential is not the primary problem. This girl also may need help in deciding whether to keep or give up her baby. In the Wilmington area she has a choice of using the services of Family Service of Northern Delaware,

the Catholic Welfare Guild or the State Department of Public Welfare. These agencies will inform the girl of her legal rights and help her to make realistic plans. In the downstate area the State Department of Public Welfare is the main agency accessible to unmarried mothers. Catholic Welfare Guild makes services available downstate through regular visits of a social worker to the local parishes. The Family Court of New Castle County and the Juvenile Court of Kent and Sussex County can be helpful in establishing paternity and securing support for the unmarried mother's child when this is indicated. If the mother decides to give up her child for adoption, child placement agencies such as the Children's Bureau of Delaware, the Catholic Welfare Guild and the State Department of Public Welfare will make suitable adoption plans that will protect the rights and interests of both the natural parents and the adopting parents. The Children's Bureau's services are available to persons of Jewish faith. All three agencies mentioned offer services on a statewide basis.

In view of the Delaware State Law's requirement that placement and adoption of children be approved by the State Department of Public Welfare or an authorized social agency, getting the unmarried mother to such an agency as soon as possible will prevent complications of unsatisfactory, illegal, independent placements that may violate the rights of the natural parents and expose the infant to an unsuitable environment.

3. Problems of the aged and chronic illness.

With the increasing proportion of aging persons in our population serious problems arise in relation to adequate care for the chronically ill and aged. Many families are unable to keep a bedridden, aged person in the home. In cases of senility and behavior problems, the presence of the aged person in the home can be disruptive to family relationships. Most families want to take care of aged parents and have conflicting feelings about having them placed in nursing homes or institutions. Good institutional and nursing care is expensive on a

private basis and frequently beyond the means of individual families. Family service agencies such as Family Service of Northern Delaware, Catholic Welfare Guild and the Jewish Welfare Society can help families explore alternative plans for the care of the aged and know the available resources, both public and private, for institutional placement. The State Board of Health maintains a list of licensed nursing homes.

Aged people in need of financial assistance may apply to the State Department of Public Welfare for old age assistance. Due to statutory ceilings grants are not adequate for nursing home care but may be of help to families planning for aged members.

Chronically ill and handicapped persons who are homebound, frequently need special equipment to facilitate their care. The Delaware Society for Crippled Children and Adults offers an equipment locating service for the state whereby equipment available for loan is located for individuals who can not provide it for themselves.

The State Department of Public Welfare is responsible for administering the programs of financial assistance for individuals and families who are in need and meet the legal requirements for eligibility. Long-term chronic illness can rapidly deplete the average family's financial resources and it may need to apply for assistance until the bread winner is able to return to work or some other member is able to assume responsibility for economic support.

Some national health agencies such as the Delaware Society for Crippled Children and Adults, Delaware Heart Association, Delaware Association for Retarded Children, Delaware Anti-Tuberculosis Society, National Foundation for Infantile Paralysis, Muscular Dystrophy Association of America, United Cerebral Palsy Association of Delaware, Delaware Division - American Cancer Society and Mental Health Association of Delaware may be able to provide financial help for special medical needs of patients whose illness is of the nature of their area of diagnostic interest. Some of them offer educational, counseling, transportation and personal services to the family

coping with chronic illness. They are a valuable source of information on available resources to meet special needs and problems. All of these volunteer health agencies have offices in Wilmington and many have local chapters in the counties that act as representatives for the Wilmington office.

Crippling accidents and handicapping chronic illness can cause loss of ability to earn a living. Such patients need rehabilitation services which will provide them with a useful occupation. The Vocational Rehabilitation Division of the State Department of Public Instruction has vocational rehabilitation counselors who cover the whole state. Upon referral of a doctor they will assess the capabilities of the individual for vocational training. If the patient can achieve a feasible vocational plan the necessary physical restoration and rehabilitation services will be provided. The Rehabilitation Center of the Eugene du Pont Convalescent Memorial Hospital, Opportunity Center and Goodwill Industries also provide rehabilitation services. The latter two have sheltered workshop facilities for the training and employment of handicapped persons.

4. Problems of marital difficulty and conflict in family relationships.

In our current society family breakdown is a national social problem affecting many people, particularly children. Statistics indicate the highest peak of divorce is in the fifth year of marriage and usually involves one or more children. Doctors frequently are aware of the difficulties at an early stage and anything that can be done to help with these problems before they become acute will strengthen family life.

Family service agencies such as Family Service of Northern Delaware, Catholic Welfare Guild and Jewish Welfare Society offer marital counseling as one of their services. Through frequent interviews over a period of time they help couples to sort out their feelings, evaluate their situation and find constructive ways of dealing with their conflicts. Counseling services also are available in parent-child relations to all residents of the State of Delaware if they

can get to Wilmington where the agencies have their offices. The Catholic Welfare Guild makes services available to downstate Catholic families through a social worker who visits the parishes on a regular schedule.

5. Special problems of children.

Securing help for children who have problems can contribute to prevention of future maladjustments and serious difficulties. Cases of neglect and abuse of children are the responsibility of the State Department of Public Welfare through its protective services. The situations they handle include instances where the doctor feels there is serious medical neglect. Protective services will work with the family over a specified period of time to give them an opportunity to improve the care and treatment of the child. Occasionally, when no improvement can be secured court action is taken to remove the child from the home. Many children have difficulties in school which lead to unhappiness, behavior problems and truancy. The Division of Child Development and Guidance of the State Department of Public Instruction is responsible for working with these children to help them make a better school adjustment.

They also make special educational plans for school age children with handicaps, such as blindness, deafness or other physical defects that prevent the child from benefitting from regular attendance. The Wilmington Child Guidance Center and the Mental Hygiene Clinics of the Delaware State Hospital held throughout the state offer diagnostic and or treatment services for children with behavior and emotional difficulties. The Govern Bacon Health Center provides residential treatment for disturbed children. Children with crippling conditions who are eligible for care in the Crippled Children's Program of the State Board of Health have social service available to them through the Medical Social Consultants of the Division of Maternal and Child Health and Crippled Children's Service. The Medical Social Consultants work with parents of crippled children where necessary to help them in their acceptance of the child's condition and his medical treatment and to

improve attitudes that may interfere with the child's achieving the maximum independence and social development possible.

Recent developments in the field of mental retardation throughout the nation have brought about rapid growth of resources and services for families dealing with this problem. The Delaware Association for Retarded Children provides group activities for parents so that they may channel their concerns into constructive activities for all retarded children. It provides information on resources for the training and care of retarded children. The Maternal and Child Health Division of the State Board of Health has a program on mental retardation giving special emphasis to the pre-school child. Consultation on mental retardation is provided to the staff of the State Board of Health and the community as well as examination services and counseling for parents. A day care center program for helpless retarded children has been provided by the State Board of Trustees of the Hospital for the Mentally Retarded. There is a day care center in each county.

Many patient problems may fall in the above classifications. Others may be hard

to classify or complicated. Doctors may avail themselves of any of the above mentioned agencies for consultation about patients' problems. In general, most social agencies know the resources of the community and are familiar with the services of other agencies. They can advise the doctor of the suitable agency for his patient.

The Welfare Council in Wilmington is a statewide association of public and voluntary health and welfare agencies and civic organizations. It is familiar with the program and services of all agencies in the state and can advise doctors of appropriate resources for patients' needs. It publishes the Delaware Social Directory which lists all agencies and describes their services. Doctors who would like to have a copy of this directory may secure it by writing to the Welfare Council of Delaware, 1203 Gilpin Avenue, Wilmington 6, Delaware.

The close working together of doctors and social agencies in the early recognition of social problems and the use of existing resources to meet them can do much toward the prevention of family breakdown and chronic disability.

MEDICAL COURT CASES



HOWARD NEWCOMB MORSE

Counsellor at Law

*Member of the Bar of the Supreme Court
of the United States of America*

6900 South Shore Drive • Chicago 49, Illinois

“CHARITABLE IMMUNITY”

McDERMOTT VS. ST. MARY'S HOSPITAL CORPORATION

Supreme Court of Errors of Connecticut 144 Conn. 417, 133 A. 2d 608

This was an action against a hospital for negligence. The Superior Court of New Haven, Connecticut, directed a verdict for the hospital, and the patient appealed from the judgment entered thereon. The Supreme Court of Errors of Connecticut affirmed the decision of the lower court.

The basis of the action arose on the night when the patient gave birth to her child and complications developed which endangered her life. The patient's uterus did not close down as it should have shortly after delivery. She began to bleed profusely and went into a state of deep shock with collapse of circulation. She had no pulse or respiration and only a faint heart-beat.

The attending physician massaged the fundus of the uterus to get it to contract. He pumped blood into the patient's veins and had the attending anesthetist administer oxygen. He called for blankets and hot-water bottles. Hot-water bottles were filled by a nurse with water from the tap. The bottles were closed with the locking device on each. Four of the bottles, wrapped in lap stockings, were placed about the patient's legs, which were protected by a cotton blanket, the legs being encased in lap stockings. More blankets were laid on top of the hot-water bottles and wrapped around the patient. From time to time the

attending physician felt of the patient's legs to see if circulation was starting and he noticed no excessive heat. The following morning the physician examined blisters and redness on the patient's legs and concluded that they were caused by burns from the hot-water bottles. Twenty days later, after she had returned home, the patient developed severe pain in her legs.

The claim against the hospital was that there was negligence on the part of nurses in the manner in which hot-water bottles were used and not checked to determine whether untoward results were ensuing, and that a hospital such as St. Mary's was no longer entitled to charitable immunity. The Supreme Court of Errors of Connecticut declared: "There was no evidence that similar hospitals similarly located provide mechanical equipment for testing or controlling the temperature of water used in hot-water bottles. There was no evidence that similar hospitals used a method of securing bottles different from that used here. . . Even if negligence on the part of some nurse in placing or wrapping the hot-water bottles were conceded, it would not avail the plaintiff unless we reversed a long line of cases upholding the defense of charitable immunity. . . At this time we are not prepared to change the law of this state by overruling pertinent cases."

BING VS. THUNIG AND ST. JOHN'S EPISCOPAL HOSPITAL**Court of Appeals of New York****2 N. Y. 2d 656, 163 N. Y. 2d 3, 143 N. E. 2d 3**

This was an action against a hospital and another for injuries sustained by a patient when burned during the course of an operation. The Supreme Court of Kings County, New York, entered judgment upon a verdict for the patient, and the hospital appealed. The Appellate Division of the Supreme Court of New York reversed the decision of the trial court, and the patient appealed. The Court of Appeals of New York reversed the decision of the Appellate Division and granted a new trial in the trial court.

The patient was severely burned during the course of an operation, performed at St. John's Episcopal Hospital by her own physician, for correction of a fissure of the anus. She had been made ready for the operation, before the surgeon's appearance, by the hospital anesthetist and by two nurses also in the employ of the hospital. Preparatory to administering spinal anesthesia, the anesthetist painted the lumbar region of the patient's back with an alcoholic antiseptic, tincture of zephiran, an inflammable fluid, reddish in color. Again, after induction of the spinal anesthesia, one of the nurses applied the zephiran solution to the operative area. At the time there were three layers of sheeting under the patient.

The nurses were fully aware that the inflammable antiseptic employed was potentially dangerous. They acknowledged that they had been instructed, not only to

exercise care to see that none of the fluid dropped on the linen, but to inspect it and remove any that had become stained or contaminated. However, they made no inspection, and the sheets originally placed under the patient remained on the table throughout the operation.

The surgeon was not in the operating room when the antiseptic was applied and at least 15 minutes elapsed before he initiated the preoperative draping process. The draping completed, the doctor took a heated electric cautery and touched it to the fissure to mark it before beginning the actual searing of the tissue. There was a "smell of very hot singed linen" and, "without waiting to see a flame or smoke," he doused the area with water. Assured that the fire was out, he proceeded with the operation. Subsequent examination of the patient disclosed severe burns on her body and later inspection of the linen disclosed several holes burned through the sheet under her.

The hospital defended on the ground of charitable immunity. The Court of Appeals of New York, after finding negligence on the part of the nurses, stated that the doctrine of charitable immunity "is out of tune with the life about us, at variance with modern-day needs and with concepts of justice and fair dealing. It should be discarded. . . If . . . adherence to precedent offers not justice but unfairness, not certainty but doubt and confusion, it loses its right to survive, and no principle constrains us to follow it."

REPORT OF SALK POLIOMYELITIS VACCINATION STATUS IN DELAWARE

The State Board of Health, in cooperation with the State Medical Society, has conducted an intensive Salk Poliomyelitis Vaccination program following the National Foundation's field trials in 1954. The evaluation of the field trials and the delayed manufacture of large quantities of the vaccine on a commercial basis did not permit us to complete as much work as we had hoped until the spring of 1956. In the first part of the program we concentrated our efforts on children and especially those age groups in which acute poliomyelitis ordinarily takes the highest toll. The 5-9 age group was the first one completed. No adult program was started until the spring of 1957, when large public clinics were conducted by physicians from the Medical Society of Delaware and Nurses from the Delaware Nurses Association, under the direc-

tion of the local health officers.

The following report includes all vaccinations given in the field trials and in the subsequent programs up to and including June 30, 1958. A total of 555,931 doses of vaccine were given to 198,586 persons. 344,837 of these injections were given in the cooperative clinics. It is estimated that physicians in the same period of time gave 211,094 doses in private offices. The National Foundation furnished enough vaccine to administer approximately 40,000 doses of the above total. This was given primarily in New Castle County to those children who participated in the 1954 field trials, and includes some 4th dose boosters. The table below shows the number of doses given, along with the total eligible persons in each age group.

Age group	1 dose	2 doses	Boosters	No. with 1 or more	Total eligible
0 - 4	611	4,180	35,929	40,720	43,200
5 - 9	110	1,246	29,978	31,334	34,704
10 - 14	56	141	26,765	26,962	29,232
15 - 19	504	1,991	24,171	26,666	28,648
20 - 45	5,866	17,975	49,063	72,904	140,360
Total	7,147	25,533	165,906	198,586	276,144
Total doses	7,147	51,066	497,718	555,931	

This table indicates an interesting fact—that from birth through 19 years of age approximately 85% of our child population have had complete immunization against poliomyelitis. An additional 7% has had 1 or 2 doses. These persons should complete their immunizations at as early a date as possible. The age group from 20-45 has 35% complete coverage, with an additional 17% partially completed. In the total eligible population of approximately 276,000, more than 60% have received the full 3 doses, with another 10% having received only 1 or 2 doses. This represents excellent response, especially in the 0-19 age groups. From observations

throughout the country, it would appear that our child population would be protected against any large outbreak or epidemic. However, it is known that the vaccine is not 100% effective. Therefore, we can anticipate scattered cases of polio from time to time in any locality of the State.

The vaccine used in the public clinics was furnished by funds appropriated by the General Assembly and a small grant provided in the Federal Polio Vaccination Assistance Act. The Medical Society of Delaware, prior to the vaccination program, offered the assistance of all their members to operate public clinics without cost. Hun-

dreds of physicians volunteered their services in their local communities and gave the 344,837 shots in the public clinics. These physicians have our sincere thanks for the great public service which they rendered to the people of Delaware. The Medical Society is to be congratulated for the active participation in the program to end the scourge of poliomyelitis. The hundreds of nurses who voluntarily gave of their time in the clinics deserve our grateful thanks. Without their assistance the entire program would have been impossible. Each community also furnished numerous volunteer clerks to maintain a good record system. The help these people gave will always be

deeply appreciated. It was a great community service also. The Board of Health furnished the vaccine, supplies, and supervision for each clinic. Staff nurses and physicians from the County Health Units and the Wilmington Department of Health arranged the schedule at times outside of working hours for the convenience of all. Many of these nurses and physicians also worked in the clinics. Our thanks go to all who assisted in this very important public project. The way in which the people of Delaware received the program is a credit to their high level of knowledge especially in the health field.

NOUR EDDINE HALABI, M.D.

1923-1958

Dr. Halabi died on July 24, 1958 at 35 years of age. After graduating in 1947 from the American University of Beirut School of Medicine, Lebanon, he came to the United States and interned in Alexandria, Virginia. Following his internship he had surgical residencies at Wilmington General and Delaware Hospitals.

He became a citizen in 1953 and immediately entered the Army Medical Corps in which he served for two years.

Dr. Halabi was active in the American Cancer Society and was Director of the Delaware Division at the time of his death. He is survived by his wife, his mother and one daughter.

JOHN RAYMOND DOWNES, M.D.

1879-1958

After spending over fifty years in the practice of medicine, Dr. Downes died on September 4, 1958 at 79 years of age.

The first part of Dr. Downes' life was spent in Maryland. He was born in Queen Anne's County and graduated from the University of Maryland School of Medicine in 1904. He practiced for 20 years in Preston.

Dr. Downes moved to Newark in 1924 and soon became one of its most beloved and prominent citizens. He was deputy state health officer for rural New Castle County for 18 years, a position for which he was qualified on the basis of past experience, having been health officer for Queen Anne's County from 1912 to 1919.

During World War I Dr. Downes served on army transports to Europe as a Captain in the Army Medical Corps. He was active in civic affairs and served two terms on the Newark city council. He is survived by a son, Captain Robert Noble Downes, USN (Ret.), a daughter, Mrs. Mark N. Donohue, and two grandsons.

+ *Editorial* +

WILL HISTORY REPEAT ITSELF?

The agencies that were the precursors of the Veterans Administration were founded with the intent of providing medical care for those persons who were wounded in action against enemies of the United States. This is a worthy cause with which none will take issue. From the beginning, however, the Congress has made laws most liberal in their definition of who shall be entitled to receive medical care. This now includes any veteran of any war, regardless of the service connection of his illness.

Near the end of World War II, the American Legion, concerned with the problem of giving good medical care to veterans, were critical of many medical policies existing in the Veterans Administration. About the same time, Dr. Paul B. Magnuson, Professor of Orthopedic Surgery at Northwestern University proposed to the administrator of veterans affairs, Brigadier General Frank T. Hines, that there should be an affiliation between the Veterans Administration hospitals and the medical schools. This proposal was rejected.

In 1945, General Hines was made ambassador to Panama and his duties were assumed by General Omar N. Bradley. General Bradley had as his medical director, Major General Paul R. Hawley, recently Chief Surgeon in the European Theatre of Operations. General Hawley kept in contact with many outstanding men in American medicine, his closest advisor being Dr. Elliott C. Cutler, Professor of Surgery at Harvard. As stated by Dr. Magnuson when he later became Chief Medical Director, the objectives of this program were:

1. To attract and retain adequate full time personnel by offering opportunities for professional growth and development and providing salaries commensurate with ability.

2. To secure the services of outstanding medical men to serve as teachers, consultants and attending physicians.

3. To inaugurate a residency training program, by means of which Grade A medical schools would participate in the treatment of patients and the training of the full time staff, and by means of which the critical shortage of medical specialists could be partially overcome.

4. To build new hospitals in urban centers in close proximity to medical schools and medical talent and to attempt to make every VA hospital a teaching hospital.

5. To insure that professional personnel are relieved so far as possible from all non-essential administrative duties and are free to devote their full time and attention to the care and treatment of patients.

6. To develop a research program which would improve therapeutic procedures, provide training materials and make the Department of Medicine and Surgery a professional alert and progressive medical organization.

The program was a great success. The initial step was the accomplishment of point four which was done by direct action of the Veterans Administration.

Accomplishment of the first two points was aided to a considerable extent by an increase in the pay scale which took into account the physician's professional training and standing as a specialist. All physicians, dentists, and nurses were removed from the requirements of Civil Service; furthermore, physicians received an additional 25 per cent of their base pay if certified by a specialty board.

Points three and six were accomplished by the appointment of Deans Committees. Each hospital located in a teaching center had a Deans Committee consisting of representatives of the local medical school or schools. This committee was responsible for the patient care while the Veterans Administration was responsible for the physical operation of the hospital. Admiral Joel T. Boone, who succeeded Dr. Magnuson as Chief Medical Director said: "It is axiomatic that the best medicine in the world is practiced in teaching hospitals."

The Veterans Administration Department of Medicine and Surgery has made tremendous advances since World War II.

The last Congress, at the recommendation of the Veterans Administration, passed into law a bill increasing the pay scale of the VA physicians in general but cutting the bonus for board certification from 25 to

ten per cent.

The Veterans of Foreign Wars, an organization almost as politically prominent as the American Legion, went on record at an annual meeting as favoring the abolishment of the Deans Committees.

Which way are we heading?

NEW DEVICE TO EVALUATE EFFECTIVENESS OF ANTI-SPASTIC DRUGS DEVELOPED THROUGH JOINT MEDICAL-INDUSTRY COOPERATION

The research efforts of two doctors and an electronics firm have been combined to unveil the latest and most objective method to evaluate effectively, anti-spastic drugs.

Sufferers from many afflictions that result in involuntary muscular contraction, ranging from multiple sclerosis to Parkinson's disease, may benefit from studies conducted by William James Erdman II, Chairman, Department of Physical Medicine and Rehabilitation, School of Medicine and Graduate School of Medicine, University of Pennsylvania, and Dr. Arthur J. Heather, Medical Director of the Eugene duPont Hospital and Rehabilitation Center, Wilmington, Del., and an instructor at the University of Pennsylvania School of Medicine.

Utilizing a new electronic device called a "multi-purpose force recorder", Dr. Heather reported to the American Congress of Physical Medicine and Rehabilitation meeting recently that he had been able to achieve marked improvement in three patients suffering from Parkinson's disease.

The force recorder enables the physician for the first time to measure quantitatively: (1) the degree of spasticity present in a patient, and (2) the effectiveness of anti-spastic drugs currently available.

Dr. Heather demonstrated to the Congress that neither a doctor nor the patient may be relied upon to judge improvement or lack of it when anti-spastic drugs are administered.

Physicians called in to examine the 33 patients under study reported, in 80 per cent of the cases, improvement from fair to excellent.

Approximately 95 per cent of the pa-

tients themselves thought that their muscle spasms had eased the first few days a new drug was administered.

Actually, daily measurements taken at the same time by the force recorder, showed little or no change.

Thus, Dr. Heather pointed out, the psychological effects of a new drug on both patient and physician underlines the unreliability of clinical evaluation and the important need for reliable techniques in the evaluation of drug therapy.

In test studies, the drugs used ranged from the family of tranquilizers to beer—(effect negligible). Of the 33 patients studied, 42 per cent were benefited. Dr. Heather concluded that "from our present knowledge, it appears that combinations of drugs give a much better anti-spastic response than when given alone."

The multi-purpose force recorder used in the studies of anti-spastic drugs was developed by All American Engineering Company, Wilmington, Del., and is now available to physicians and hospitals. It is engineered to absorb a wide range of muscular forces from a few ounces to many pounds.

In using the force recorder, the patient stretches out on a standard hospital table and places his foot in a beach shoe connected to a strain gauge. A measured stimulus is applied to the Achilles (heel) tendon. The response is fed through an electrode attached to the skin into an amplifier, which in turn records graphically on a direct writing oscillograph. Thus, after the patient's normal muscle spasm is recorded, various kinds and amounts of anti-spastic drugs may be administered, their effect recorded, and the most beneficial dosage determined down to the last milligram.

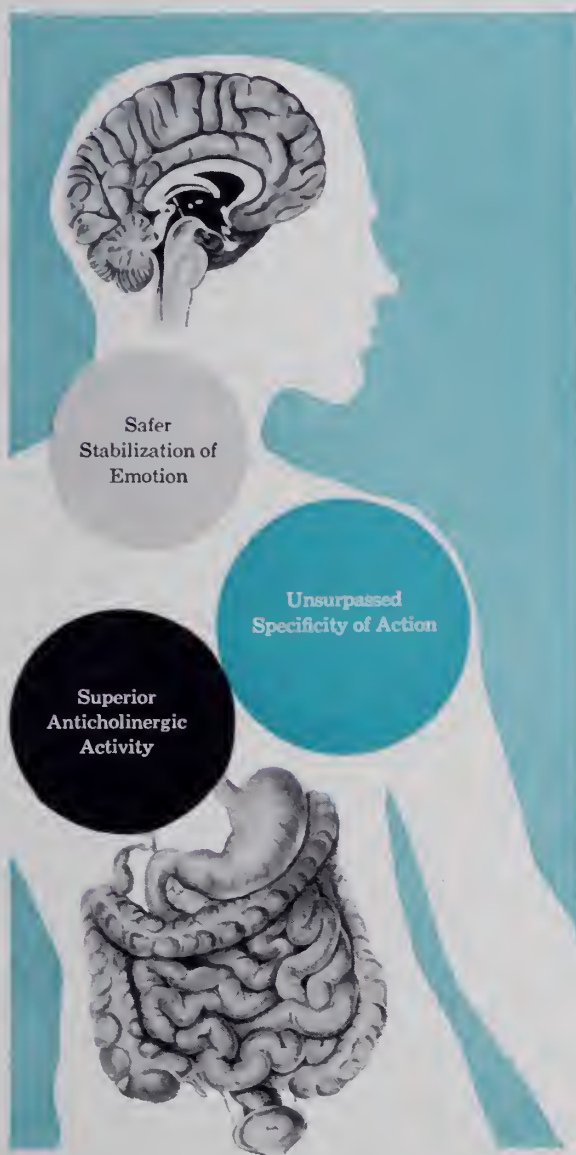
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1. Russek, H. I.: Postgrad. Med. 19:562 (June) 1956.

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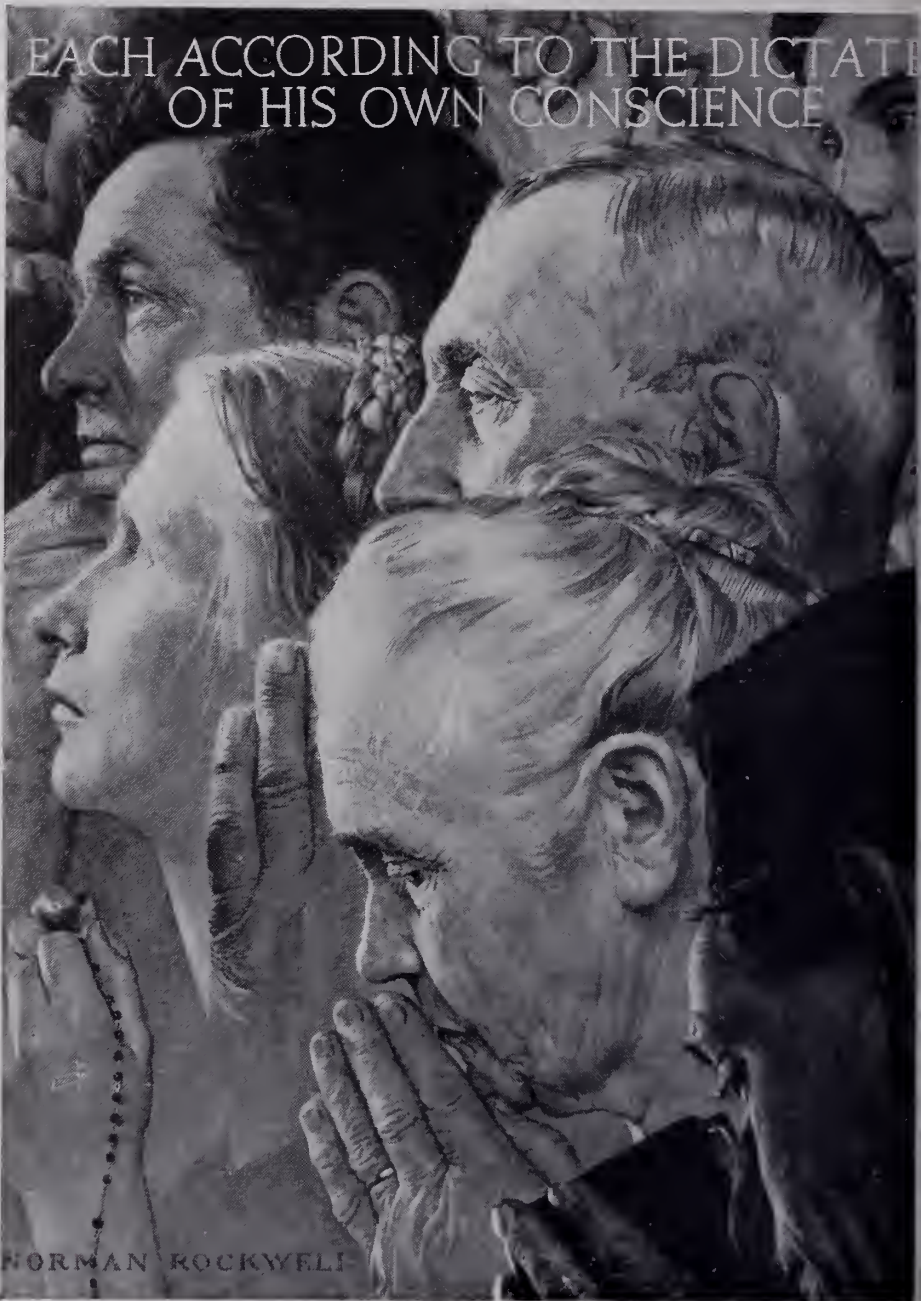
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^{*}Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

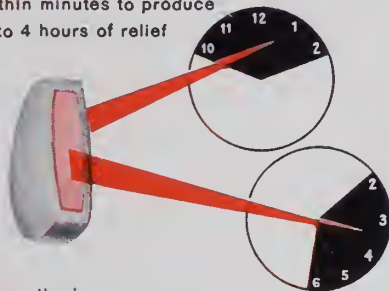
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References: 1. Innerfield, I.; Shub, H., and Boyd, L. J.: New England J. Med. 258: 1069 (May 24) 1958. 2. Miller, J. M.; Godfrey, G. C.; Ginsberg, M. J., and Papastrat, C. J.: J. A. M. A. 166:478 (Feb. 1) 1958. 3. Davidson, E; Prigot, A., and Maynard, A. de L.: Harlem Hosp. Bull. 11: 1 (June) 1958 *Reg. U. S. Pat. Off.

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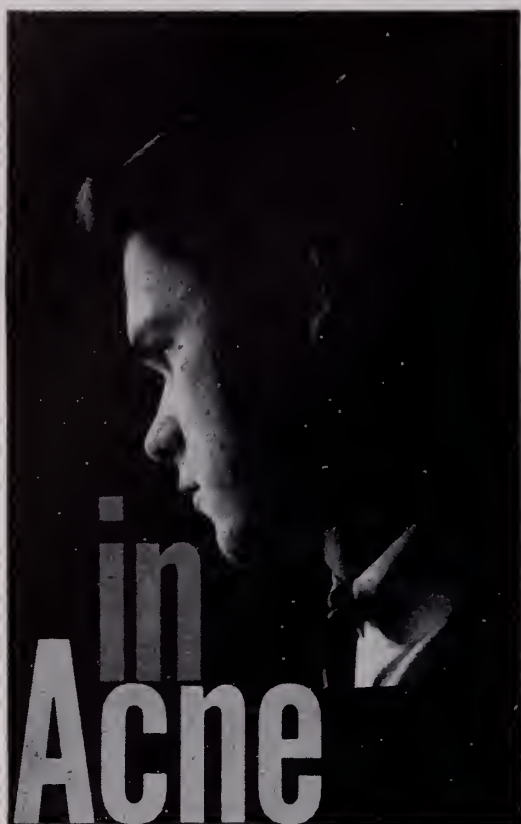
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1. Hodges, F. T.: *GP* 14:86, Nov., 1956.

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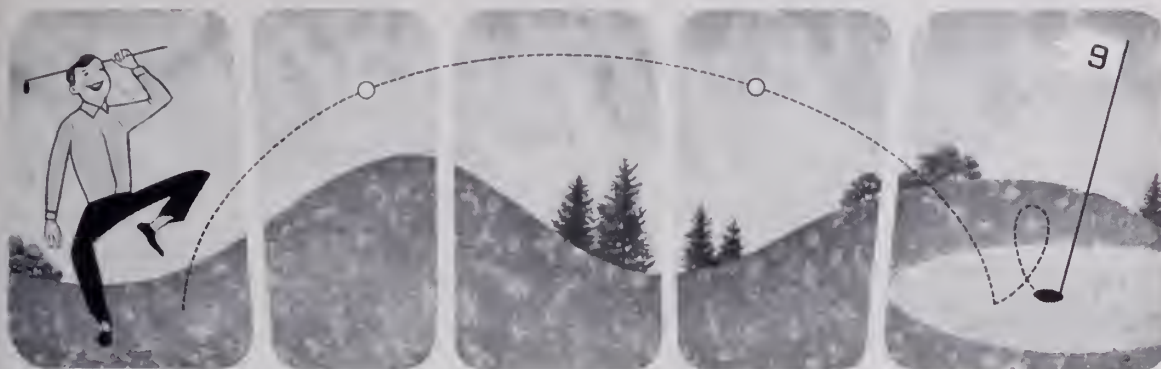
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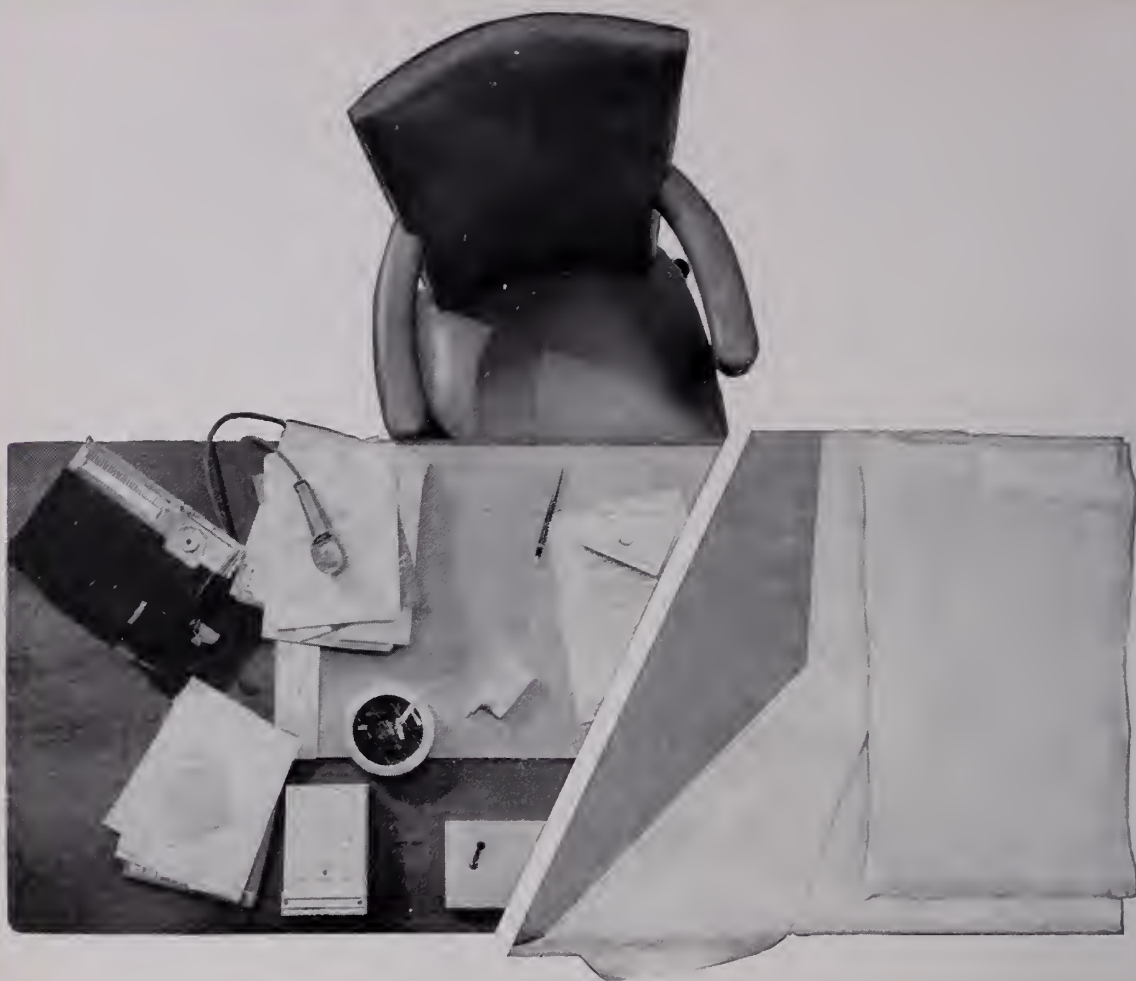
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OCTOBER, 1958

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SYMPOSIUM ON CARDIOVASCULAR DISEASE

Complete Contents on Page iv

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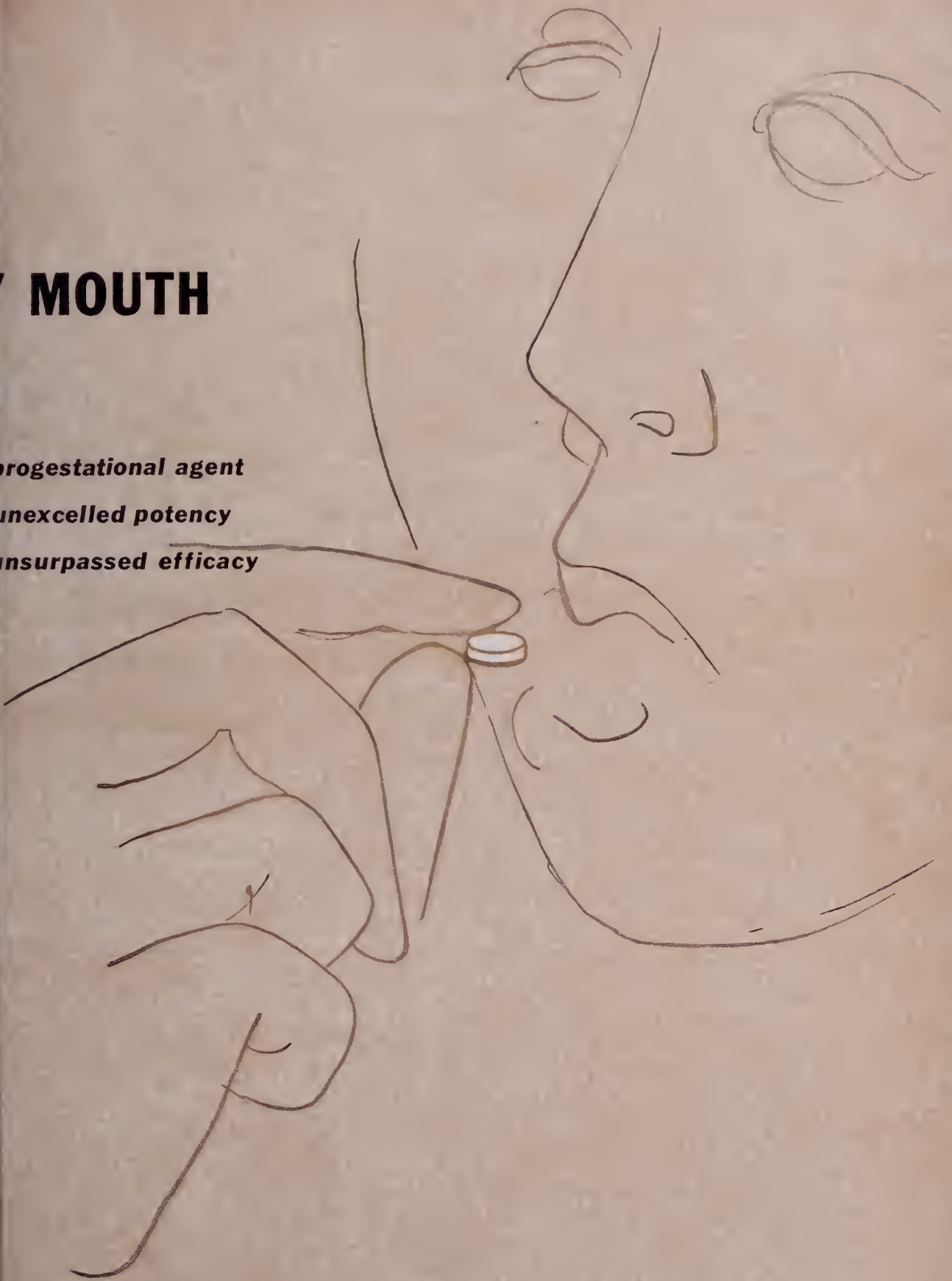
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why all the fuss over potassium?



Many physicians will recall when safe but potent organomercurials were first introduced. At the time there was considerable worry about possible potassium loss. Patients were instructed to take foods rich in this mineral, and not infrequently potassium supplements also were advised. After enough experience was gained, it became evident that only the exceptional case could lose enough potassium to be concerned about. And with oral organomercurial diuretics this was practically never a problem.

Why revive the subject now? Because clinical experience with nonmercurial diuretics indicates most of them have such a specific effect on potassium that with their use very real problems must be faced. Enough potassium loss can lead to digitalis toxicity or to a classical overt hypopotassemia. Since a fair percentage of cardiacs who receive diuretics are also digitalized, this excess potassium excretion is clinically serious. Clinical experience is still too limited with some nonmercurial diuretics to say just how often such loss will occur—but warnings already have been sounded by some clinical investigators as to the need for potassium supplementation.

Experience in many patients, for many years, demonstrates that potassium loss is never a problem when NEOHYDRIN® is the oral diuretic. And there is no refractoriness to this effective oral organomercurial.

PREVENT both cause and fear of ANGINA ATTACKS

proven
safety
for
long-term
use



Miltrate*

NEW DOVETAILED THERAPY COMBINES IN ONE TABLET

prolonged relief from
anxiety and tension with

MILTOWN®

The *original* meprobamate,
discovered and introduced
by Wallace Laboratories



sustained coronary
vasodilation with

PETN

pentaerythritol tetranitrate
a leading,
long-acting nitrate

"In diagnosis and treatment [of cardiovascular diseases] . . . the physician must deal with both the emotional and physical components of the problem simultaneously."¹

The addition of Miltown to PETN, as in Miltrate, "...appears to be more effective than [PETN] alone in the control of coronary insufficiency and angina pectoris."²

Miltrate is recommended for prevention of angina attacks, not for relief of acute attacks.

Supplied: Bottles of 50 tablets.

Each tablet contains: 200 mg. Miltown + 10 mg. pentaerythritol tetranitrate.

Usual dosage: 1 or 2 tablets q.i.d. before meals and at bedtime.

Dosage should be individualized.

For clinical supply and literature, write Dept. 38A

1. Friedlander, H. S.: The role of ataraxics in cardiology. *Am. J. Card.* 1:395, March 1953.

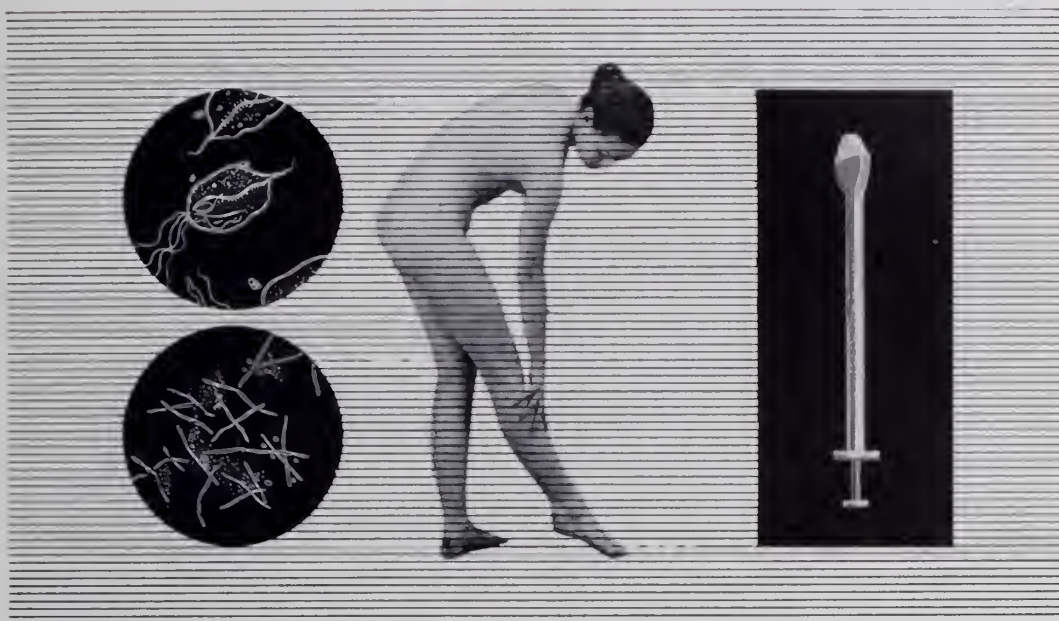
2. Shapiro, S.: Observations on the use of meprobamate in cardiovascular disorders. *Angiology* 8:504, Dec. 1957.



WALLACE LABORATORIES, New Brunswick, N. J.

*TRADE MARK

FOR FLAGELLATE AND FUNGAL VAGINITIS



Floraquin®

Destroys Common Vaginal Pathogens; Rebuilds Normal Bacterial Barrier

Whenever a woman complains of vaginal discharge with pruritus, a trichomonal infection¹ must be suspected. Moniliasis, the second most frequent cause² of leukorrhea, often occurs³ in conjunction with diabetes mellitus, pregnancy and estrogen or broad spectrum antibiotic therapy. Commonly used douches wash away normal acid secretions and protective Döderlein bacilli, thus tending to aggravate the problem.

Floraquin, containing Diodoquin® (diiodo-hydroxyquin, U.S.P.), eliminates infection and provides boric acid and sugar to restore the acidic pH which favors replacement of pathogens by normal Döderlein bacilli. The danger of recurrence is thus minimized.

Pitt reports² consistently good results after daily vaginal insufflation of Floraquin powder for three to five days, followed by acid douches and the daily insertion of Floraquin vaginal tablets throughout one or two menstrual cycles.

Intravaginal Applicator for Improved Treatment of Vaginitis—

This smooth, unbreakable, plastic plunger device is designed for simplified insertion of Floraquin tablets by the patient; it places tablets in the fornices and thus assures coating of the entire vaginal mucosa as the tablets disintegrate. A Floraquin applicator is supplied with each box of 50 tablets.

G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

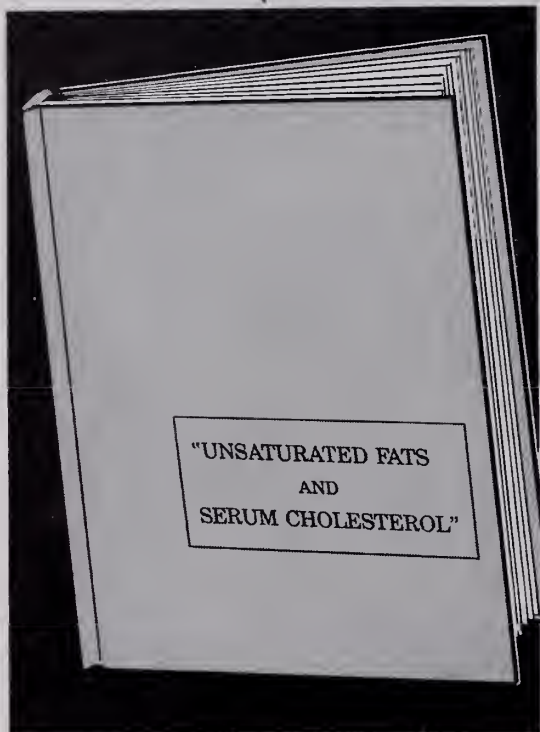
1. Davis, C. H.: Trichomonas Vaginalis Infections: A Clinical and Experimental Study, J.A.M.A. 157:126 (Jan. 8) 1955.

2. Pitt, M. B.: Leukorrhea, Causes and Management, J.M.A. Alabama 25:182 (Feb.) 1956.

3. Lang, W. R.: Recent Advances in Vaginitis, Philadelphia Med. 51:1494 (June 15) 1956.

SEARLE

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just off the
press... send
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"Unsaturated Fats and Serum Cholesterol"

*A review of the latest concepts and
results of current research*

This new book contains the most up-to-date bibliography of current research on: 1. The origin and behavior of cholesterol in the human body; 2. The effect of different dietary fats on serum cholesterol levels; 3. The nature of the active components in vegetable oils; and 4. Suggestions for practical diets.

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MAZOLA® CORN OIL

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control of Serum Cholesterol levels*

MAZOLA CORN OIL... the only leading oil made from golden corn, is rich in the important unsaturated fatty acids—When an adequate amount of Mazola is part of the daily meals, elevated serum cholesterol levels tend to be lowered... normal levels tend to stay level...

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CORN PRODUCTS REFINING COMPANY



Each **TABLESPOONFUL** of
MAZOLA

Provides approximately:

LINOLEIC ACID.....7.4 Gm.
Sitosterols 130.0 mg.
Natural tocopherols 15.0 mg.
Cholesterol.....0
Weight.....14 Gm. **Calories**.....126
Total unsaturated Fatty Acids—85%

TYPICAL AMOUNTS PER DIET

For a 3600 calorie diet.....3 Tbsp.
For a 3000 calorie diet.....2.5 Tbsp.
For a 2000 calorie diet.....1.5 Tbsp.

ARTHRITIS... OR GOUT?



BENEMID[®]
PROBENECID

A SPECIFIC FOR GOUT

GOUT—THE DIAGNOSTIC PROBLEM

Clinical "curiosity" rather than clinical "instinct" is the key to accurate diagnosis of gout. Visible manifestations may not appear until late in the course of the disease. Moreover, the patient's description of the pain and the site of the pain may not differ markedly from other articular disorders.

THE FOLLOWING FINDINGS ARE HIGHLY INDICATIVE OF GOUT: (1) *Tophaceous deposits* resulting in irregular, asymmetrical deformity of joints; (2) *Elevated serum uric acid levels* (above 6 mg.%); (3) *Pain relief with colchicine*. When findings suggest gout, therapy with 'Benemid' should be started immediately.

BENEMID[®]—AN EFFECTIVE URICOSURIC AGENT

'Benemid' is firmly established as an *effective* and exceptionally *safe* uricosuric agent. 'Benemid' approximately doubles the excretion of uric acid; reduces serum uric acid levels toward normal; often prevents formation of new tophi, and gradually mobilizes existing uric acid deposits; minimizes incidence and severity of future attacks.

'Benemid' is of remarkably low toxicity—usually so low as to be clinically insignificant—even in patients who have been on uninterrupted therapy for almost a decade. The uricosuric effects of salicylates and 'Benemid' are mutually antagonistic and these compounds should not be used together.

RECOMMENDED DOSAGE: 0.25 Gm. (½ tablet) twice daily for one week followed by 1 Gm. (2 tablets) daily in divided doses.



MERCK SHARP & DOHME

DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

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CHRONIC BRONCHITIS OR INFECTIOUS DERMATITIS?



ACCELERATE THE
RECOVERY
PROCESS WITH

VARIDASE BUCCAL TABLETS

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*Reg. U. S. Pat. Off.

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Provides Complete Malpractice Protection,
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Comments by investigators on

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(Methocarbamol Robins, U.S. Pat. No. 2770649)

Robins

—the remarkably efficient skeletal muscle relaxant, unique in chemical formulation, and outstanding for sustained action and relative freedom from adverse side effects.

PUBLISHED REFERENCES: 1. Carpenter, E. B.: Southern Medical Journal 51:627, 1958. 2. Forsyth, H. F.: J.A.M.A. 167:163, 1958. 3. Little, J. M., and Trullitt, E. B., Jr.: J. Pharm. & Exper. Therap. 119:161, 1957. 4. Morgan, A. M., Trullitt, E. B., Jr., and Little, J. M.: J. Am. Pharm. Assn., Sci. Ed. 46:374, 1957. 5. O'Doherty, D. S., and Shields, C. D.: J.A.M.A. 167:180, 1958. 6. Park, H. W.: J.A.M.A. 167:168, 1958. 7. Trullitt, E. B., Jr., and Patterson, R. B.: Proc. Soc. Exper. Bio. & Med. 95:422, 1957. 8. Trullitt, E. B., Jr., Patterson, R. B., Morgan, A. M., and Little, J. M.: J. Pharm. & Exper. Therap. 119:189, 1957.

Supply: Tablets (white, scored), 0.5 Gm., bottles of 50 and 500.

A. H. ROBINS CO., INC., Richmond 20, Va.

Ethical Pharmaceuticals of Merit since 1878

Summary of four new published clinical studies:

Robaxin Beneficial in 95.6% of Cases of Acute Skeletal Muscle Spasm^{1, 2, 5, 6}

CONDITION	NO. PATIENTS	RESPONSE			
STUDY 1¹		"marked"	moderate	slight	none
Skeletal muscle spasm secondary to acute trauma	33	26	6	1	—
STUDY 2²		"pronounced"			
Herniated disc	39	25	13	—	1
Ligamentous strains	8	4	4	—	—
Torticollis	3	3	—	—	—
Whiplash injury	3	2	1	—	—
Contusions, fractures, and muscle soreness due to accidents	5	3	2	—	—
STUDY 3⁵		"excellent"			
Herniated disc	8	6	2	—	—
Acute fibromyositis	8	8	—	—	—
Torticollis	1	—	—	1	—
STUDY 4⁶		"significant"			
Pyramidal tract and acute myalgic disorders	30	27	—	2	1
TOTALS	138	104 (75.3%)	28 (20.3%)	4	2

THE JOURNAL
American Medical Association

"In the author's clinical experience, methocarbamol has afforded greater relief of muscle spasm and pain for a longer period of time without undesirable side effects or toxic reactions than any other commonly used relaxants..."²

THE JOURNAL
American Medical Association

"An excellent result, following methocarbamol administration, was obtained in all patients with acute skeletal muscle spasm..."⁵

THE JOURNAL
American Medical Association

"In no instance was there any significant reduction in voluntary strength or intensity of simple reflexes..."⁶

Southern
Medical Journal

"This study has demonstrated that methocarbamol (Robaxin) is a superior skeletal muscle relaxant in acute orthopedic conditions..."¹



new 3-way
build-up for
the under par
child...

Improve appetite and energy

with ample amounts of vitamins—B₁, B₆, B₁₂.

strengthen bodies with needed protein

Through the action of L-Lysine, cereal and other low-grade protein foods are up-graded to maximum growth potential.

discourage nutritional anemia

with iron in the well-tolerated form of ferric pyrophosphate...plus sorbitol for enhanced absorption of both iron and B₁₂.

new

NCREMIN*

Lysine-Vitamins

WITH IRON SYRUP

delicious
cherry flavor—
no unpleasant
aftertaste

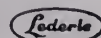
Average dosage is 1 teaspoonful daily. Available in bottles of 4 and 16 fl. oz.

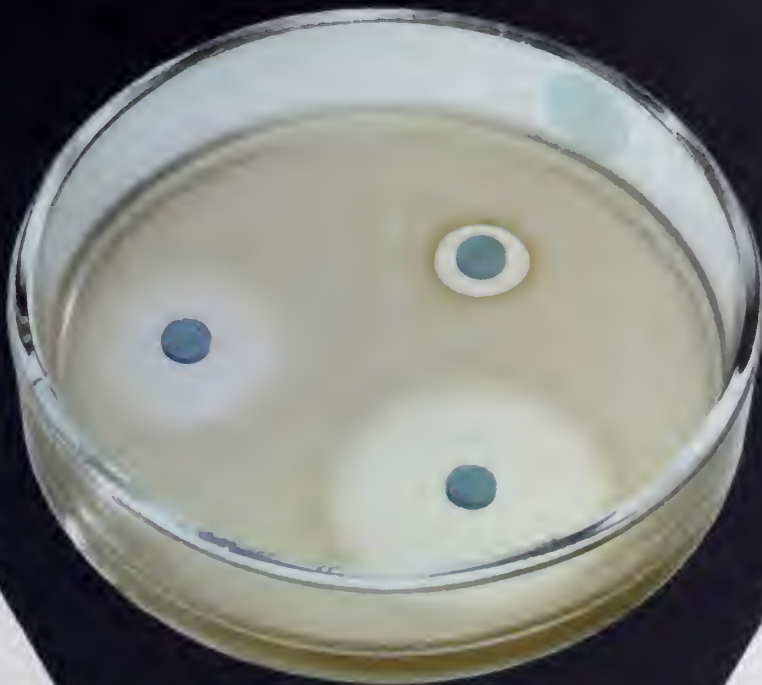
Each teaspoonful (5 cc.) contains:

L-Lysine HCl	300 mg.
Vitamin B ₁₂ Crystalline	25 mcgm.
Thiamine HCl (B ₁)	10 mg.
Pyridoxine HCl (B ₆)	5 mg.
Ferric Pyrophosphate (Soluble)	250 mg.
Iron (as Ferric Pyrophosphate)	30 mg.
Sorbitol	3.5 Gm.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

*Reg. U. S. Pat. Off.





*for
the control
of all
coccal
infections*

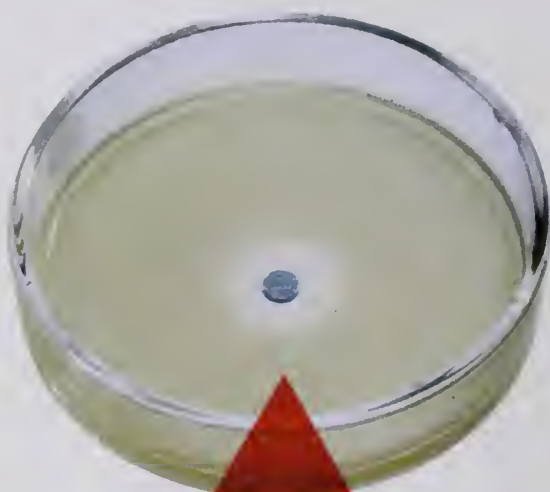
abbott's antibiotic triad



Erythrocin[®]

stearate

(Erythromycin Stearate, Abbott)



*against
staph-, strep-
and
pneumococci*

indications:

In infections caused by staphylococci, streptococci (including enterococci) and pneumococci. Also, against organisms that have become resistant to other antibiotics. ERYTHROCIN should be used where patients are allergic to penicillin or other antibacterials.

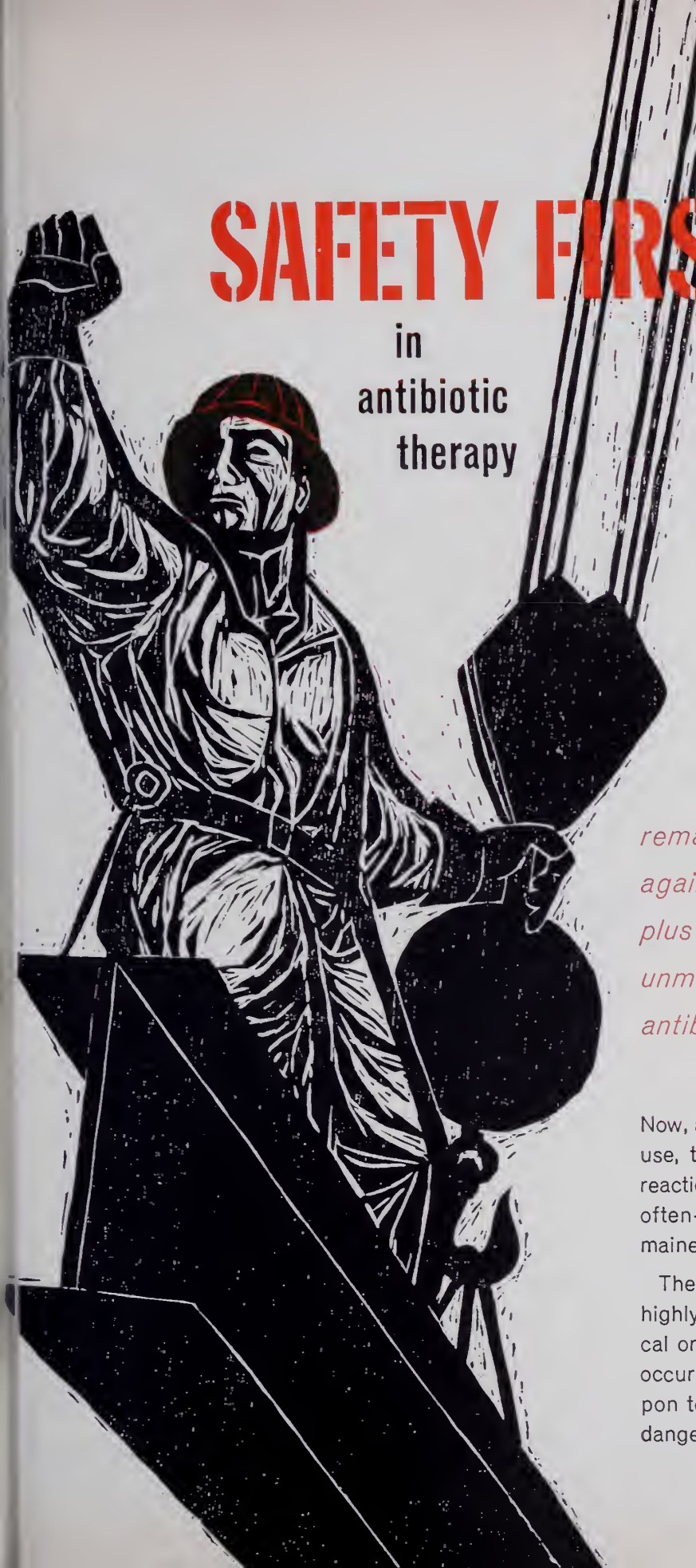
dosage:

Usual adult dose is 250 mg. every six hours; for severe infections, usual dose is 500 mg. every six hours. Child's dose may be reduced in proportion to body weight.

supplied:

In bottles of 25 and 100 Filmtabs (representing 100 and 250 mg. of ERYTHROCIN activity). Also, in cinnamon-flavored oral suspension; 75-cc. bottles. Each 5-cc. teaspoonful represents 100 mg. of ERYTHROCIN activity.

® Filmtab—Film-sealed tablets, Abbott; pat. applied for.



SAFETY FIRST

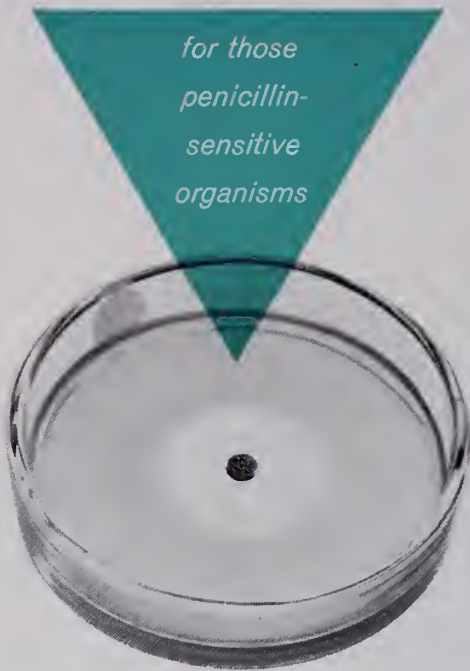
in
antibiotic
therapy

*remarkable effectiveness
against the cocci—
plus a safety record
unmatched in systemic
antibiotic therapy*

Now, after more than six years of extensive use, there has not been a single serious reaction to ERYTHROCIN. Additionally, the often-met problem of resistance has remained unusually low with ERYTHROCIN.

Therapeutically, you'll find ERYTHROCIN highly effective against the majority of coccal organisms. Where severe viral attacks occur, ERYTHROCIN may well be the weapon to counteract those dangerous complications.

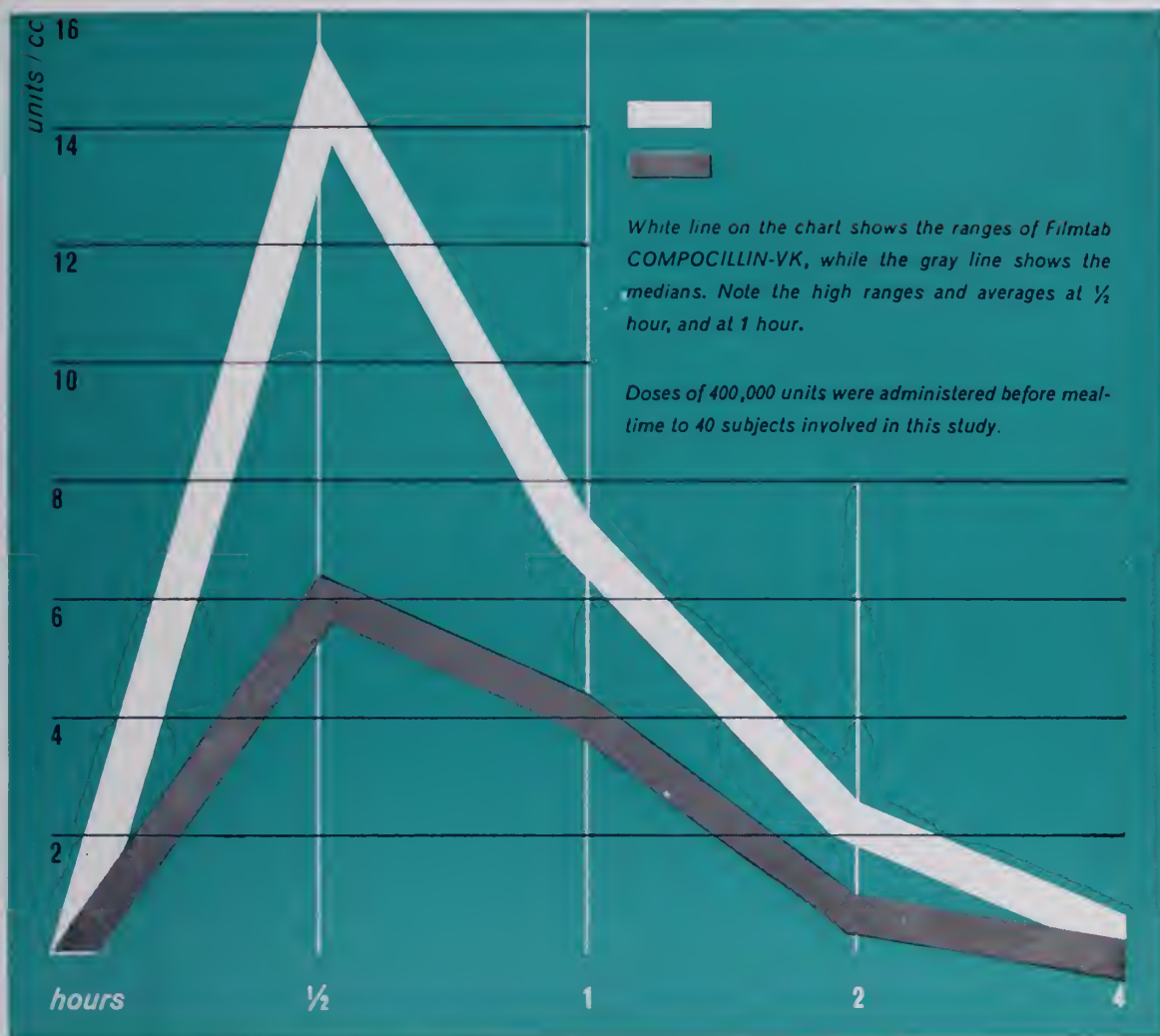
Abbott



the ^{higher} blood levels of

COMPOCILLIN-VK[®]

Potassium
Penicillin V



NOW, IN BOTH FILMTAB AND ORAL SOLUTION, patients get high penicillin V blood levels with COMPOCILLIN-VK. Note the chart. Concentrations are three times higher than an equivalent dose of potassium penicillin G.

COMPOCILLIN-VK is indicated whenever you desire oral penicillin therapy. In severe infections, oral penicillin should be supplemented by parenteral therapy to obtain the-maximum therapeutic response.

Indications:

Against all organisms sensitive to oral penicillin therapy. For prophylaxis and treatment of complications in viral conditions. And as a prophylaxis in rheumatic fever and rheumatic heart disease.

Dosage:

Depending on the severity of the infection, the usual adult dose is 125 to 250 mg. (200,000 to 400,000 units)

every four to six hours. For children, dosage may be reduced in proportion to body weight.

Supplied:

In Filmtabs, representing 125 mg. (200,000 units) of potassium penicillin V, bottles of 50 and 100. In 250 mg. (400,000 units), bottles of 25 and 100.

For Oral Solution, COMPOCILLIN-VK comes in dry granules for easy reconstitution with water. Cherry-flavored, the granules come in 40-cc. and 80-cc. bottles. Each 5-cc. teaspoon of solution represents 125 mg. (200,000 units) of potassium penicillin V.

COMPOCILLIN-V® Oral Suspension (Ready-Mixed), Hydrabamine Penicillin V, Abbott, comes in 40-cc. and 80-cc. bottles. Each tasty, banana-flavored 5-cc. teaspoonful represents 180 mg. (300,000 units) of penicillin V. At all pharmacies. *Abbott*



*when
coccid infections
hospitalize
the patient*

indications:

Against a wide range of staphylococcal, streptococcal, pneumococcal and enterococcal infections. A drug of choice for treating serious infections caused by organisms that resist all other antibiotics.

dosage:

Administered intravenously. In pneumococcal, streptococcal and enterococcal infections, a dosage of 25 mg./Kg. will usually be adequate. Majority of staphylococcal infections will be controlled by 25 to 50 mg./Kg. per day. It is recommended that the daily dosages be divided into two or three equal parts at eight- or 12-hour intervals.

supplied:

In vials containing a sterile, lyophilized powder, representing 500 mg. of ristocetin A activity.

SPONTIN[®]

(RISTOCETIN, ABBOTT)

*provides bactericidal action
against coccal infections*

*provides successful short-term therapy
against endocarditis¹*

*provides clinical effectiveness against
resistant staphylococci and enterococci²*

Now, after almost a year, SPONTIN has proved to be an exceptionally valuable agent for treating serious coccal infections.

Some of the outstanding clinical responses to SPONTIN therapy involved enterococcal endocarditis, staphylococcal pneumonias and staphylococcal bacteremias. These were patients who were going downhill steadily—in spite of treatment by other antibiotics.

Results, of course, were not always good. Sometimes, the patient was treated with SPONTIN too late. Occasionally, there were side effects and SPONTIN had to be withdrawn. But generally, SPONTIN proved extremely useful and many times—lifesaving. Be sure your hospital has it stocked.

Abbott

1. Antibiotics Annual, 1956-'57, p. 706.

2. Antibiotics Annual, 1957-'58, p. 180-7.

an important lifesaving antibiotic



new

Tao *
brand of triacetylsandomycin with glucoSAMine
 Capsules / Oral Suspension

designed
 for
 effective
 control of
 common
 gram-
 positive
 infections



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Division, Chas. Pfizer & Co., Inc.

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THE WORLD'S
WELL-BEING

*TRADEMARK

effective ...

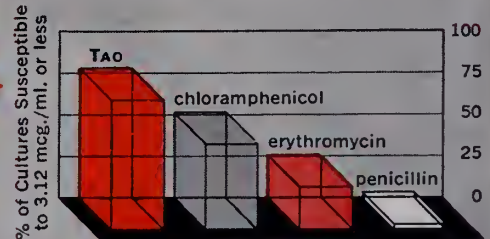
CLINICAL
RESULTS

	adults	children	all Staph infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were *Staph. aureus* and *Staph. albus*. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, *Hemophilus influenzae*.

even
against
resistant
staph^{1,2...}

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.¹

well
tolerated ...

REACTIONS:

(a) adults

Total—9.2%
 (20 out of 217)
 Skin rash—1.4%
 (3 out of 217)
 Gastrointestinal—
 7.8% (17 out of 217)

(b) children

Total—0.6%
 (1 out of 167)
 Skin rash—none
 Gastrointestinal—
 0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus ...

stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation.

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since Tao is therapeutically stable in gastric acid, it may be administered at any time, without regard to meals.

Supplied: Tao Capsules—250 mg. and 125 mg.; bottles of 60. Tao for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 476.

now—an antibiotic troche that

STOPS COUGH TOO

The *cough control* provided by homarylamine (a non-narcotic antitussive) approximates that of codeine.

Three antibiotics (bacitracin, tyrothricin, neomycin) act in combination against a wide variety of pathogens—with little danger of side reactions.

The anesthetic-analgesic effect of benzocaine brings *soothing relief* to inflamed tissues of mouth and throat.

PENTAZETS now extend the therapeutic usefulness of convenient troche medication. Each pleasant-tasting PENTAZETS troche acts promptly against the most bothersome aspects of mouth and throat irritations.

PRESCRIBE

Pentazets[®]

antitussive—antibiotic—anesthetic—analgesic troches



MERCK SHARP & DOHME

DIVISION OF MERCK & CO., Inc., PHILADELPHIA 1, PA.

Dosage: Three to 5 troches daily for 3 to 5 days.

Supplied: In vials of 12.

PENTAZETS is a trademark of Merck & Co., Inc.

NEW styling for known standard

To diabetics and their physicians, CLINITEST means rapid *and* reliable urine-sugar testing—standardized for accurate results every time. And now, the new streamlined model (No. 2105) gives your diabetics this standard test in the best looking, most efficient form.

CLINITEST[®] BRAND urine-sugar analysis set

- **functional:** full-view test tube always in place
- **refillable:** takes either bottle of 36 or sealed-in-foil CLINITEST reagent tablets
- **attractive:** two-tone, neutral gray plastic case

Model No. 2105 CLINITEST Urine-Sugar Analysis Set contains everything needed for accurate standardized testing: bottle of 36 CLINITEST Reagent Tablets, test tube, unbreakable dropper, color scale—instruction sheet, analysis record, diabetic's identification card



MODEL NO. 2105



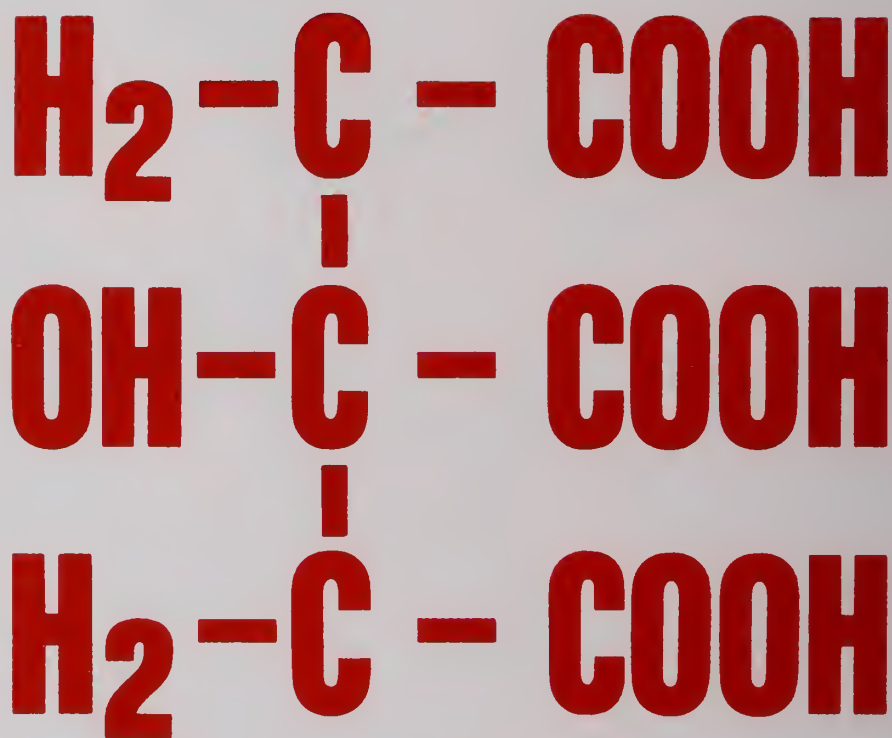
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for unsurpassed performance at the clinical level . . .



Achromycin*V

CITRIC ACID
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additive
choice
of
Lederle Research



triple assurance of maximum antibiotic potency

In developing ACHROMYCIN V, Lederle research scientists aimed for patient response rather than laboratory results, and chose citric acid for its outstanding value under clinical conditions. Citric acid is unique in that it contains THREE free carboxyl groups in every molecule to combine with the metallic ions which interfere with gastrointestinal absorption. This activity thus leaves the pure active tetracycline molecule available for full absorption and rapid action at the site of infection.

Achromycin*V

TETRACYCLINE WITH CITRIC ACID, LEADER

ASSURES EVERY PATIENT PRECISE

**ANTIBIOTIC ACTION UNDER THE VARIED
CONDITIONS OF REALISTIC CLINICAL PRACTICE**

produces optimal gastric conditions

Ideally, most antibiotics are given on an empty stomach. Since citric acid helps control unfavorable variations in gastric content, conditions in the stomach are optimal with ACHROMYCIN V tetracycline with citric acid.

prevents interference with absorption

Sequestering of antibiotic molecules by free metallic ions, always present in the intestinal tract, can deprive patients of a full therapeutic dose. The three active carboxyl radicals which protect the action of ACHROMYCIN V trap these free cations and allow uninhibited antibiotic absorption.

provides for peak antibiotic action

At the site of infection where, in essence, all antibiotics are proved, ACHROMYCIN V combats a wide range of pathogens under optimal tissue conditions. Citric acid, a factor of medically established value in the natural acid-base regulating mechanism of the G.I. tract, facilitates a more complete, and rapid antibiotic action.

**MORE DOCTORS PRESCRIBE
ACHROMYCIN V THAN ANY OTHER
BROAD-SPECTRUM ANTIBIOTIC**



LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, N.Y.

BONADOXIN[®] STOPS MORNING SICKNESS, BUT.

Highest percentage of relief:
In *Drugs of Choice*¹, clinical data
on several therapies for nausea
and vomiting of pregnancy is
summarized. BONADOXIN afforded
the highest percentage of relief
in the "excellent" (79%) and
"good" (16%) combined
categories. The majority of cases
were completely controlled in
the first week of treatment,
almost all on one tablet nightly.





Safe, too:

BONADOXIN doesn't "stop" the patient. It is free of side effects commonly associated with overpotent antinauseants. Goldsmith, reporting on 620 controlled cases, states that "toxicity and intolerance [are] zero."²

BONADOXIN DOESN'T STOP THE PATIENT!

Now
available in tablet or drop form.

Dosage: usually one tablet or one tsp. (5 cc.) at bedtime. Severe cases may require another dose on arising.

Supplied: tiny pink-and-blue tablets, bottles of 25 and 100. Bonadoxin Drops in 30 cc. dropper bottles.

Each tiny pink-and-blue Bonadoxin tablet contains:

Meclizine HCl (25 mg.)
...for symptomatic relief
Pyridoxine HCl (50 mg.)
...for metabolic action and prompt
antinauseant effect.

Infant colic?

Non-narcotic Bonadoxin Drops stop colic in about 85% of cases.

Each cc. contains:

Meclizine Dihydrochloride . . . 8.33 mg.
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6 months to 2 years	1.5 to 2 cc.	
2 to 6 years	3 cc.	
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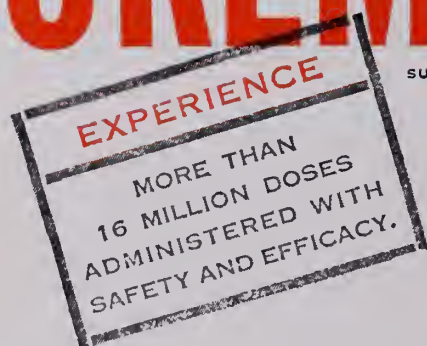
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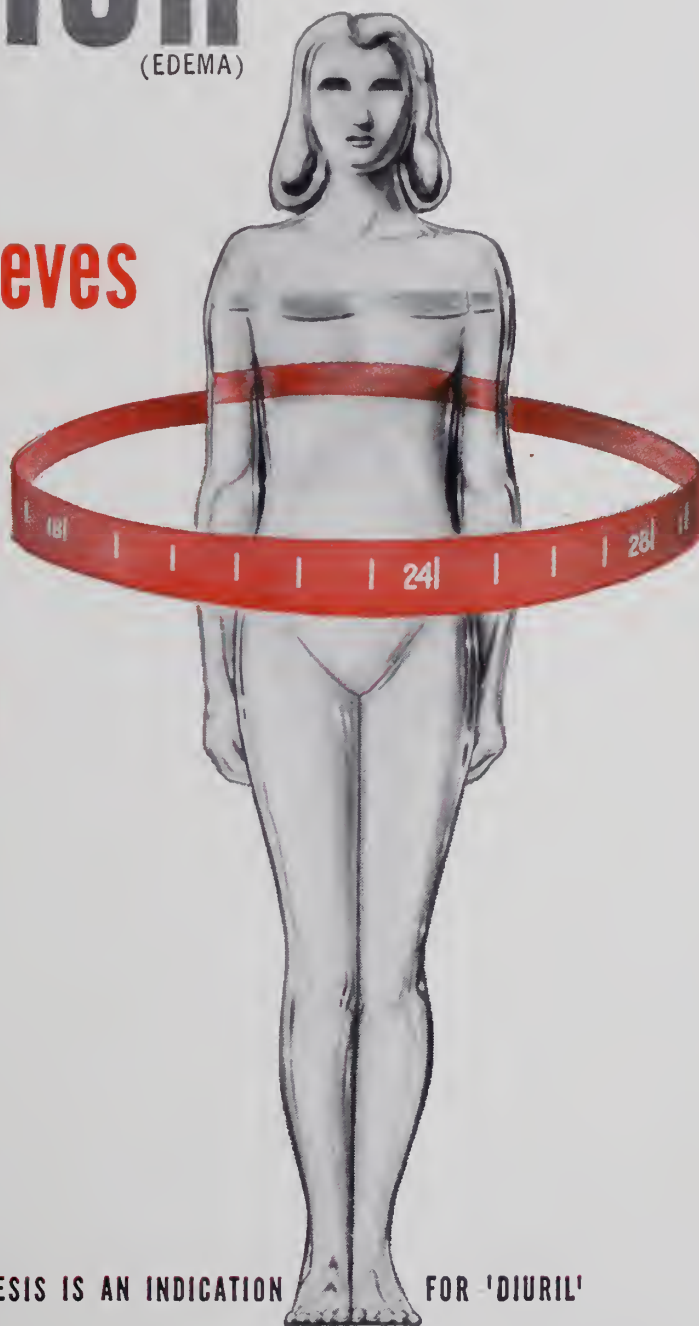
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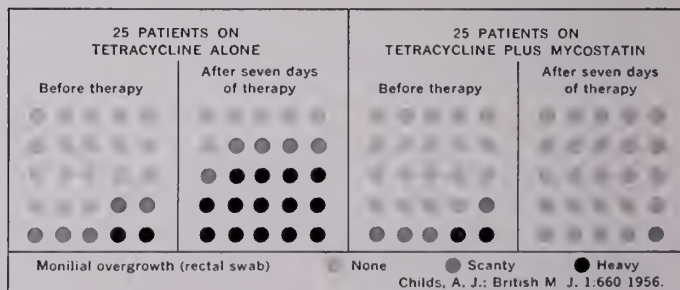
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(1) Marangoni, B. A.: Am. Pract. & Digest Treat. 8:1959, 1957.

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SYMPOSIUM:

Recent Developments in the Diagnosis and Treatment of Cardiovascular Disease

Introduction

Twenty years ago leading heart specialists were content to make a diagnosis of congenital heart disease. To be more specific was purely academic inasmuch as there was no definitive treatment for the condition.

Twenty years ago when an anesthetist was confronted by the sudden onset of tachycardia in his patient, he played the law of averages and treated the patient for the most common form of tachycardia. Sometimes he was wrong.

Twenty years ago a patient with thyrotoxicosis was offered a choice of three methods of therapy: a major surgical operation, medical treatment or x-ray treatment. The latter two were not always satisfactory and the first was sometimes impossible due to the condition of the patient.

Twenty years ago there was little to offer the patient suffering with angina pectoris except nitroglycerine. True, certain groups were advocating removal of the thyroid gland but this was a major surgical operation and the patient was known to have serious heart disease.

The Memorial Hospital has been privileged in the past to do its share of medical

pioneering in the state of Delaware. The Carpenter Memorial Clinic, established in 1935, and the Chest Conference, established several years later, have proven their usefulness by the test of time.

Once again the Memorial Hospital is proud to assume its share of medical progress.

Cardiac catheterization and angiocardiology, procedures once performed only in medical teaching centers, are now being done in many non-university hospitals. Memorial Hospital is equipped to carry out these tests. Indeed, the image amplifier in the x-ray department is a piece of equipment found in few hospitals in this country.

The oscilloscope or operating room cardioscope is now standard equipment. It is used in any instance where there is any doubt regarding the past or present status of the patient's cardiovascular system.

The establishment of an isotope laboratory provided the latest in the diagnosis and treatment of diseases of the thyroid gland and, indirectly, of the heart.

The following articles summarize the data of these recent advances.

NOTES ON CARDIAC CATHETERIZATION

STANLEY VERBIT, M.D.*

Cardiac catheterization is one of the most accurate methods used in the diagnosis of cardiovascular and pulmonary diseases. It is an important supplement to the information obtained from all other studies of the cardiac patient: a detailed history, complete physical examination, electrocardiogram, x-ray studies and angiocardiography.

Because of recent developments in surgical techniques, performing open heart surgery with the use of heart-lung machines, the classification of surgically correctable heart abnormalities has been expanded. Almost any anatomical or valvular defect may be considered for operative correction but accurate and early diagnosis of the exact nature of the cardiac defect becomes increasingly important.

Catheterization of patients with cardiac problems generally can be undertaken without great difficulty or danger of mortality. The study usually is carried out on a fluoroscopic table. During the entire period of the study, the patient is continuously monitored with an oscilloscope to detect the development of any ectopic rhythm or other change in the electrocardiogram. After the catheter is introduced into the heart manipulation of the catheter through the heart chambers is done under fluoroscopic guidance.

In right heart catheterization the catheter is introduced into a vein draining into the median basilic system. The left arm is preferred to the right because manipulation of the catheter within the heart chamber is easier with this approach. In children, where the arm veins are not satisfactory, the saphenous vein at the femoral area may be used.

The usual plan of study is to collect data (oxygen samples and pressure readings) in a rapid, uninterrupted manner from the cardiac chambers. The usual procedure is to wedge the catheter into the pulmonary arterioles and collect the data in the following order: main branches of the pulmonary artery, the truncus of the pulmonary artery, outflow tract of the right ventricle, mid-portion of the right ventricle, tricuspid area of the right ventricle, tricuspid area of the right auricle, right auricle, superior vena cava and inferior vena cava. If, during the catheterization, the catheter enters any chamber of the left heart, pulmonary vein of the aorta, blood specimens and pressures are obtained out of sequence.

Because of the technical surgical advances in acquired valvular and congenital heart disease, information is required from areas in the heart which cannot be supplied by right heart catheterization. A technique of catheterizing the left side of the heart is used so that pressure tracings of the left atrium, left ventricle and aorta can be recorded. A modification of the technique of Fisher is most commonly used, employing a right posterior intercostal approach to introduce a needle directly into the left auricle. A polyethylene catheter is then threaded through the needle into the auricle, the left ventricle and the aorta. Data are obtained from the left heart chambers and the regions adjacent to the aortic and mitral valves.

Complications observed during or after completion of the cardiac catheterization usually are of a minor character when rigid attention is given to observing the details of the technique. Development of abnormalities of cardiac rhythm is the most important complication. Premature contractions are often noted on the monitoring

*Assistant, Department of Medicine

electrocardiogram during manipulation of the catheter within the heart. These are recorded when the tip is passed through the tricuspid valve or lies in contact with the intraventricular septum and promptly subside when the position of the catheter is changed. All types of transient cardiac arrhythmias have been recorded. The most serious arrhythmia is that of ventricular premature contractions. When these are encountered and the abnormal stimulation is not promptly corrected, runs of ventricular tachycardia can result. The prompt withdrawal of the catheter from the irritable focus will prevent this complication if early recognition of the ectopic beats or runs of ventricular premature contractions are noted. Catheterization should not be carried out unless adequate electrocardiographic monitoring is available.

Other infrequent complications reported are: venous thrombosis of the vein through which the catheter is passed, blood loss and air embolism. In left heart catheterization hemopericardium and asymptomatic pneumothorax can occur.

The purpose of passing a catheter into the heart chambers is to obtain data on intracardiac and intravascular pressures as well as the oxygen content of the blood within the chambers studied. Once the catheter is introduced into the desired cardiac chamber continuous intracardiac pressures are recorded. The patterns of the pressure curve and the range of pressure varia-

tion within the heart chamber studied serve to identify areas of abnormally high and low pressures, to define intracardiac valvular blocks, to aid in locating abnormal communications between the right and left heart and to help in identifying the location of the catheter tip while blood gas determinations are sampled.

The content of oxygen within the cardiac chambers is determined from a gas analysis of mixed venous blood taken from the right side of the heart and, where abnormal communications are present, from the left side of the heart and aorta. Samples of venous blood usually are taken from the branches of the pulmonary artery, main pulmonary artery, right ventricle and right auricle. Abnormal communications between the structures of the right heart circulation and those of the pulmonary vein, left auricle, left ventricle and aorta produce a left to right shunt. A sample of blood will show a higher oxygen content than that of mixed venous blood. When a dynamic right to left shunt exists contamination of the pulmonary venous blood can be recognized by arterial blood gas analysis.

The recent advances in surgical techniques make it important to diagnose as early and correctly as possible all cardiovascular lesions. Cardiac catheterization is the most important and essential study to obtain all possible pathologic, physiologic, and anatomic information.

RADIOLOGIC ASPECTS OF CARDIAC CATHETERIZATION

PAUL A. SHAW, M.D.*

In the early development of cardiac catheterization high radiation levels were encountered and made the examination difficult. Patient exposure was high and personnel protection was cumbersome.

The advent of the image amplifier introduced a factor of 600 x in the procedure enabling the operator and radiologist to follow the catheter adequately with the minimum radiation hazard. This high increase in visibility allows the operator to work without dark adaptation and shortens the time of the total procedure.

Technically, a large amount of apparatus is needed. X-ray equipment must be adequate in power, the image amplifier must be part of the x-ray machine and cinefluorographic equipment is valuable. A cardioscope must be used to monitor the cardiac system. A transducer apparatus connected to a two channel recorder is used to measure pressures. All this equipment must be checked for mal-function before the examination is started. A necessary piece of equipment is a central electrical grounded plate, so that no high frequency interference occurs in any of the electrical machines. This plate is a 12 inch square of heavy brass or copper with a large flexible wire and a battery clip attached. The plate has four brass bolts along three edges. The clip is attached to a good electrical ground on the x-ray machine. All ground leads from the other equipment are then attached by clips to the brass bolts.

Use of the image amplifier does not require dark adaptation except for the radiologist. The surgeon can work in a well lighted room. Saline drip mechanisms are necessary and frequently troublesome. No particular apparatus is perfect for this function. Use of a plastic foam mat on the

x-ray table gives considerable relief to the patient.

The team consists of the cardiac surgeon and physicians to run and monitor the pressure writer and the cardioscope. The x-ray group consists of the radiologist and at least two x-ray technicians.

The procedure is straight forward and should proceed without major difficulty. Blood samples for gas analysis require careful technique. Fluoroscopy time should be measured. At the rate of 1 milliamperere per second, ample time is available for moderately prolonged procedures without causing excessive radiation. Several procedures were monitored for personnel doses and at 1 MA. levels no significant dose was recorded at 2 and 4 foot distances. The dose to the patient is restricted by shutter closure and low millamperage. Patient doses vary but do not exceed 6 to 8 R. for 10 minute fluoroscopy. The above figure represents an air dose level and is not actual energy absorbed. A factual dose per cubic centimeter of tissue would be much less. Secondary distribution lateral to the patient can hardly be measured 18 inches away. At table side the maximum level was 2 milliroentgens within 6 inches of the patient. A lead rubber fluoroscopic shield cut this level to zero. It can be seen that radiation exposure is minimal when compared with the importance of the examination.

Cinefluorographic film can be made using the cardiac catheter as a probe. Sizes and irregularities of the chambers can be roughly outlined by making a kinetic record film of the catheter in different positions. Cardio angiographic opacification is somewhat less dramatic when performed through a small catheter in a cardiac chamber. High density opaques are required. This method

*Director, Department of Radiology, Memorial Hospital.

may be required by special circumstances however and valuable information may be obtained. Cardiac opacification through the catheter with the tip in the superior vena cava gives better opacification since dilution is lessened and a visible dye charge is formed en bloc.

Rapid injection by a remote controlled gas-fired syringe is vital to proper opaque bloc formation. Both cinefluorography and cassette changers are satisfactory for making the records on films. Radiation levels are necessarily higher because of the filming and are approximately equal in each type of procedure.

An angiocardio-gram can be carried out as a separate examination using a large ureteral catheter type of tube inserted through an anterior cubital vein and with its tip at the most distal level of the superior vena cava. Use of the cassette changer allows the films to be examined within 15 to 20 minutes. The entire procedure should require 30 to 40 minutes.

The above outline of the x-ray participation in cardiac diagnosis has not included many technical details. It may be stated that the procedure outlined is safe, effective and reasonable in cost. Radiation danger is controlled and kept to a minimum. Our experience has been satisfactory in all the cases carried out at Memorial Hospital to date. Our effort is based on the slogan of "maximum information with minimum radiation." In the future, with refinements of technique, an even better radiation level may be obtained.

The following case report is used as a description of the manner in which information concerning a cardiac situation can be built up by proper use of x-ray examinations.

This patient was a negro male, age forty-one with a complaint of weakness. The initial x-ray examination consisted of standard PA and lateral chest films; from this examination we were able to determine that the cardiac volume, as seen by the cardiac shadow on the films, was definitely increased. We were unable to determine any chamber abnormality and we were un-

able to determine any indication of the ability of the cardiac muscle to contract.

The second examination was ordinary fluoroscopy. The information gained with ordinary fluoroscopy was not much greater than what we had gained by the standard chest examination; however, the image amplifier examination gave us a very adequate determination of the ability of the cardiac musculature to contract. We were able to see that the large heart did not have a very forceful impulse. We were also able to see that the impulse seemed to be less efficient towards the base of the left ventricle. On the right side, we were able to see that the force of the contraction of the right ventricle was less in degree near the base of the right ventricle.

In the initial examination, we saw a double shadow on the right side of the spine. (Figure 1.) Under the image ampli-



FIGURE 1

PA Chest Film — showing double shadow on right side of heart.

fier, we were able to determine that this was part of the cardiac system and that it showed a contractile ability compatible with an auricle. We took a few feet of cinefluorographic film, making thereby a permanent record of the kinetic ability of this heart. In this film we were able to see the non-synchronous contraction of ventricles, when compared with the abnormal right sided shadow which we found in the first chest examination; again, this gave us some indication that the shadow was auricular.

The last examination was an angiocardio-gram. This was done quickly and efficiently. A catheter was inserted into the anti-cubital vein and its tip was placed proximal

to the large tributaries and the superior vena cava was used as a reservoir for collecting the opacifying media. This examination was done using the Sanchez-Perez cassette changer, with a remote control syringe which is gas fired and the whole examination was automatic, once the syringe was energized. We secured twelve films in less than eight seconds. This opacification procedure showed us very definitely that the abnormal shadow on the right side of the spine in the original chest examination was a thickened wall of the left auricle. The auricle was not increased in volume or size, but showed a very definite thickening of its wall. (Figure 2.)



FIGURE 2

Opacification technique — demonstrates that the abnormal shadow in the double shadow is left auricle.

From the facts built up in this series of examinations, it was able to be inferred that this individual probably had had a pericardial effusion and pericarditis at some time in the recent past and that we were now dealing with a fibrinous pericarditis, which was limiting muscle contraction, particularly near the base of the ventricular chambers. This situation could not be outlined in any single examination but did require a progressive sequence of examinations in the form outlined above.

An overall plan, such as was formulated in this individual, gives maximum information. Decisions made from individual reports of a single examination are frequently misleading unless they are corroborated or supplemented by other examinations. The situation in this individual was such that one item of information was obtained from one examination, another item was then ob-

tained from another type of examination and by the time the four examinations had been completed, the situation had reached a diagnostic level and the circumstances of the cardiac disability could be fairly well outlined.

The same procedure applies in many diagnostic problems. The original standard examination should be used as a beginning, but the results of this examination should merely be considered as preliminary information and a carefully formulated plan of subsequent examinations may allow the conclusion to arise at a fairly accurate diagnosis. These examinations should be correlated as to their sequence. The initial examination of a P.A. and lateral film of the chest seems to be a very satisfactory beginning. Opacification of the esophagus with oblique films may be the second part of this first phase of the examination. Careful cardiac fluoroscopy, particularly with the image amplifier, seems to be a very satisfactory method of examination, since with the image amplifier, the examiner's eyes are sharply limited to a moderate size segment of the cardiac musculature and an accurate determination of its ability and its action can be obtained.

The cinefluorographic examination is a satisfactory and accurate record of the fluorographic examination by the image amplifier. In other words, it constitutes a kinetic record of cardiac motion and muscular contraction.

The angiocardigram, done in the manner outlined above, was rather simple. The patient had no reaction. The danger of overloading the right ventricle was greatly diminished by using the superior vena cava as a reservoir for the opacifying material. The rate at which the films were taken was estimated, but in this case seemed to be entirely adequate. The resulting angiocardigram gave the needed information, with a small degree of radiation exposure to the patient. Total exposure involved in this examination and in the previous examinations spread out over a period of fourteen to twenty days does not seem to be excessive. The exact measurement of the air dose of radiation is not particularly impor-

tant, since each area that is exposed was not always the same area. In image amplification fluoroscopy, the level is small. In cinefluorography, the radiation level is moderately higher, but the machine is under constant motion and consequently no single square centimeter is given the maximum amount of radiation.

In the angiographic examination, an area corresponding to a 10 x 12 film does receive a moderate degree of radiation dosage; but, again, in an individual of this age, with a disease process of sufficient importance for this investigation, the amount of radiation received becomes insignificant from the point of view of general health.

Secondary radiation exposure is frequently considered to be significant, but present day measurements show secondary radiation within a patient's body is of small import.

The general situation in cardiac diagnosis seems to be of the type that requires a well planned radiologic approach, using careful determination of examination, which will give maximum information; and, secondary correlation of the information from each examination should be reserved until all the examinations are completed. A complete review of all the facts will give a very satisfactory degree of diagnostic information.

THE SURGERY OF CARDIOVASCULAR DISEASE

JOHN J. REINHARD, JR., M.D.*

For many years reparative surgery of congenital cardiovascular disease has been well established. Division and ligation of patent ductus arteriosus, the resection and restoration of the normal caliber of the aorta in coarctation of the aorta, are all widely known and accepted. Thoracic surgical centers perform these procedures routinely.

Interchamber defects such as interauricular and interventricular septal defects, associated with other abnormalities or present alone, require heart and lung machines and open cardiac surgery. These procedures are best performed in teaching medical centers.

Surgery in acquired cardiovascular disease, however, has achieved universal acceptance and surgical correction of deformed valves has been particularly successful in the treatment of mitral stenosis. It is not known generally that the first resection of small portions of the stenotic mitral orifice was performed by Cutler in 1922. Souttar, in 1925, first used today's approach through the left auricular appendage with the finger dilating the mitral valve, producing splitting of the commissures.

For twenty years Cutler, Sweet, Bland, and Smithy continued their efforts in the surgery of the mitral valve, contributing greatly to our knowledge in this field. But no practical results were obtained until the late 1940's. At this time Harken and Bailey independently reported their experience, repeating Souttar's technique with instrumental and finger fracture of the stenosed commissures. In spite of the original high mortality the procedure became widely accepted and, as more and more suitable cases were presented to the cardiac surgeon, the mortality rate fell and the operation was widely accepted.

Today, after ten years of pioneer effort, patients suffering from the cicatricial end results of rheumatic fever can be rehabili-

tated and restored to useful occupations. Many resume completely normal activity. Much of the original scepticism has abated and most practitioners of general medicine have at least one patient who has been restored to a useful existence by mitral commissurotomy.

Indications for surgery are now comparatively clear. The ideal candidate is one who presents pure mitral stenosis and beginning symptoms of cardiopulmonary dysfunction as evidenced by dyspnea on exertion and fatigue out of all proportion to his physical activity. As soon as the practitioner has demonstrated to his own satisfaction that the patient's symptoms are progressive, even though these may be alleviated by medical measures, the patient is a candidate for consideration of valvuloplasty. Surgery for mitral stenosis at such an early stage would carry an infinitely lower mortality and much cardiac disability would be obviated.

In experienced hands serious postoperative complications are rare and the over-all mortality rate is well below 5 per cent. The most serious complication following the surgical relief of stenosis is postoperative emboli from either dislodged clots from the left auricle in patients who are fibrillating, or dislodged particles from the calcific valve leaflets.

At the Memorial Hospital fifteen patients have undergone mitral commissurotomy; fourteen have had excellent postoperative results. In this series one patient had a major complication of brain damage secondary to hypotension which was experienced in the operative period before the valve could be split. Thirteen of the fifteen patients had no complications and were discharged, on the average, 21 to 25 days following commissurotomy. All of these patients have had excellent postoperative results and have returned to their former occupations.

*Associate, Department of Surgery

The surgery of mitral insufficiency has had less successful results. However, when minimal to moderate insufficiency is associated with mitral stenosis it frequently is possible, on splitting the commissures, to obtain some increased pliability of both the valve leaflets and the fused chordae tendinae and the mitral insufficiency may be greatly benefited. However, when the latter condition predominates in the mechanical disability of the valve open-heart surgery again seems to be the procedure of choice.

The acquired heart disease of the great vessels, such as luetic and arteriosclerotic aneurysms, are today being attacked more and more vigorously as lateral resections are possible in luetic aneurysms, and even resection of the aneurysm with the use of plastic prostheses. These procedures are now being routinely done at the Memorial Hospital.

The greatest challenge to the cardiovascular surgeon is the large group of patients who have had impaired myocardial circulation because of coronary artery disease. Many clinics originally reported glowing results in internal mammary ligation for this condition. However, the results do not tend to bear out the original reports. There may be some benefit but this has not been completely demonstrated.

Revascularization procedures, such as the internal mammary implant of Vineburg, seem to show greater promise. In this procedure the internal mammary artery is implanted into a tunnel created in the myocardium, and it is possible to demonstrate collateral circulation that develops following this procedure. Many of these patients seem to be benefited and certainly, in selected cases, good results are obtained. The Beck procedure seems to produce some revascularization of the heart and abrading of the epicardium, either with instrumental means or the use of powdered asbestos or irritating particles in the pericardium, also seems to give symptomatic improvement. It is in this field that the greatest challenge to the cardiovascular surgeon lies, inasmuch as this is the greatest reservoir of cardiac disability.

CASE REPORT

The following case illustrates the application of the latest methods of diagnosis and treatment in congenital heart disease.

The patient, a 25-year-old girl, was first studied in November 1956, because of complaints of shortness of breath on exertion for two to three years and chest pain for one year. She presented a grade 2 blowing diastolic murmur heard best at the second interspace. Fluoroscopic examination revealed a slight enlargement of the right heart with prominent pulmonary vascular markings. The ECG was normal and the hemoglobin was 16 gms. No definite diagnosis was made but intra-arterial septal defect was suspected.

She was restudied in May of 1957, because of a rash, joint pains, and fever which subsequently reached 102°. Her murmur was now variable in quality and intensity between grade 1 and 2 in the pulmonary area. Transient conjunctival petechiae and a questionable enlarged spleen were noted. However, repeated blood cultures were negative. CRPA was negative and her anti-streptolysin titer was normal. She was given a course of penicillin which was followed by slow lysis of her symptoms and fever.

Although her condition had returned to normal, the murmur remained and became louder. Cardiac catheterization was performed in January 1958, because of the possibility of her having subacute bacterial endocarditis engrafted on a patent ductus arteriosus. O₂ content of the blood was:

RA	13.3
RV	14.1
low in PA	15.5
high in PA	15.8

This represented a rise in O₂ saturation of 10% just beyond the pulmonary valve. All pressures were normal. The impression was that of a small patent ductus. Because of the previous febrile episode, surgery seemed indicated. In February 1958, thoracotomy was performed and a patent ductus 1 cm. long and 4 mm. in diameter was found. This was divided and sutured without incident. Postoperatively, she has done well.

SURGERY FOR THE CARDIAC PATIENT

A. HENRY CLAGETT, JR., M.D.*

Advances in surgery and anesthesia, particularly the latter, in the past fifteen years have changed older concepts regarding surgery on the cardiac patient. This subject does not concern itself with cardiac surgery which is discussed elsewhere but with the patient who has heart disease in whom extracardiac surgery is indicated.

One of the largest groups of patients in this category are those who have had a myocardial infarction and need abdominal surgery such as cholecystectomy or hernia repair. If the surgical condition is an emergency, such as an acute appendix or abscess of the gall-bladder, little can be done about selecting the proper time for surgery. In elective surgery, however, the first principle is to wait at least six months after the acute myocardial infarction. If, during this period, there have been no complications such as myocardial failure or coronary insufficiency, the patient should be a good surgical risk.

At times we have been forced to operate on patients who had had severe myocardial infarcts long before the six months period had expired. One patient was admitted to the hospital for treatment of cancer of the esophagus and developed myocardial infarction while awaiting surgery. The problem in this case was whether it was more dangerous to proceed with surgery or to wait and allow more chance for the malignancy to metastasize. A compromise was effected and the patient was operated on four weeks after having had the myocardial infarct. The patient survived.

The two most common complications in patients undergoing surgery are coronary insufficiency and cardiac arrhythmias. The first is avoided by keeping the patient well oxygenated and preventing any fall in blood

pressure. The second is avoided by choice of an anesthetic agent that will not be irritable to the myocardium. Monitoring the cardiac rhythm has been facilitated in the past few years by use of the operating room oscilloscope. The use of this will be discussed later.

Patients with valvular heart disease in the absence of congestive heart failure have withstood anesthesia well except those with disease of the aortic valve. In such cases, the same precautions should be taken as with patients who have myocardial damage. The great danger is coronary insufficiency due to improper filling of the coronary arteries.

Patients with hypertensive cardiovascular disease in general will tolerate surgery well. It is imperative to take positive action to see that the blood pressure is not lowered significantly. This is to prevent coronary insufficiency and renal failure.

The operating room oscilloscope has been used in this hospital for almost three years and has been used with over 500 patients. It is an instrument which allows continuous visualization of the electrocardiogram at all times. Furthermore, if a permanent record is desired, it can be taken simultaneously. This instrument is of greatest value with the patient who develops tachycardia while undergoing a surgical procedure. (Figure 1.) In a patient who has had a myocardial infarction, the onset of ventricular tachycardia not only is common but also is of grave prognostic significance. It is essential that this arrhythmia be differentiated from an auricular tachycardia, in which instance the prognosis is not so bad and, from the practical standpoint, the treatment is exactly the opposite of that for ventricular tachycardia. With the oscilloscope, the diagnosis of the tachycardia can be made at

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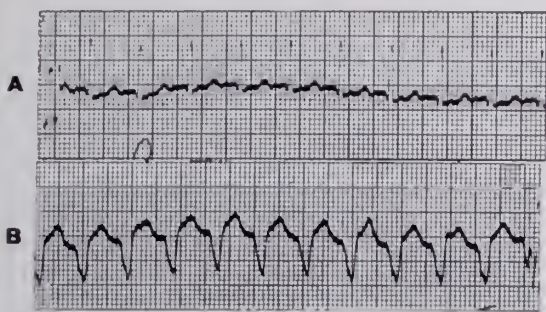


FIGURE 1

A—Tachycardia of supraventricular origin.

B—Ventricular tachycardia. It is apparent that these arrhythmias are diagnosed at a glance. This is most important during surgical operation because the prognosis and the treatment of each is entirely different from that of the other.

a glance and proper treatment instituted. In several patients, change in the amplitude and direction of the terminal ventricular complex (T wave) has given warning of impending or actual coronary insufficiency. Without any doubt, the use of this instrument has been responsible for saving a number of lives.

The above are but a few of the factors which have made surgery and the administration of an anesthetic agent a relatively safe procedure for the cardiac patient. This has been a great stride forward but it is a small sample of the tremendous advances which we have a right to expect in the next decade.

USE OF RADIOACTIVE IODINE IN EVALUATION AND TREATMENT OF CARDIAC PROBLEMS

ROBERT W. FRELICK, M.D.*

Radioactive iodine has become a valuable tool in the diagnosis and treatment of many cardiac problems. Its chief value diagnostically is for the recognition of underlying hyperthyroidism in patients with heart disease. In five years of experience with the Isotope Laboratory at The Memorial Hospital we have been continually impressed by the number of patients whose primary complaints were those of cardiac failure or irregularity but who, on routine uptakes, were found to have evidence of hyperthyroidism. Re-evaluation of the patient often revealed other clinical findings suggestive of this diagnosis, but often only one or two of the salient features were noted such as tachycardia, auricular fibrillation, a goiter, or a slight tendency to nervousness. Frequently the usual signs and symptoms of hyperthyroidism were "masked," particularly in patients over 50 years of age. A typical picture of Grave's disease was seldom seen. While the difficulty in diagnosing hyperthyroidism in the cardiac patient has been emphasized in the past, it seems likely that many of these patients were missed until the advent of radioactive iodine since the basal metabolism test often would be of no help in cardiac problems.¹ We feel that even our usual 24-hour uptake study of radioactive iodine does not pick up many cases. In the last year or two we have been interested in 6-hour and 72-hour uptakes, 72 hour PBI conversion ratios, and more recently in an in-vitro technique for determining thyroid function.² In some patients all these plus protein-bound iodine and cholesterol studies are necessary to determine a diagnosis. In still other patients the only criterion we have for establishing diagnosis is a response to therapy.

Probably, from the point of view of

treatment, I-131 therapy has been most dramatic for those classified as thyro-cardiac patients who have cardiac decompensation, angina, or tachycardia, without response to usual therapy. They have shown almost uniform improvement after treatment with I-131. Our experience in this clinic includes 18 patients of this type. Of these patients 13 showed response. (See table 1) One patient, an 80-year-old woman who had been treated for hyperthyroidism with propylthiouracil for a number of years, was given I-131 at a time when she was be-

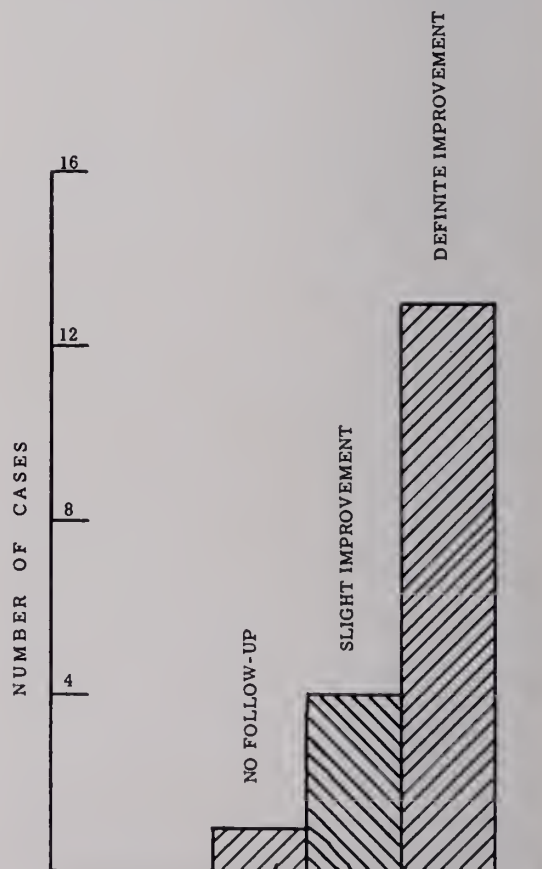


TABLE 1

Thyro-Cardiac Patients I 131 Therapy. No difference in age or sex between groups — ages range 41-81 yrs.

*Attending Chief, Department of Medicine

coming toxic and could no longer be controlled by the usual medical means. She was given a small initial dose but went into thyroid storm with increased cardiac rate and fever and did not survive. As a rule, however, this is not a problem. We have chosen to treat some of our patients with propylthiouracil or similar drugs prior to the administration of I-131 in an attempt to avoid a thyroid storm after I-131 therapy. Others, depending on their age and clinical condition, have been treated with I-131 directly. Some patients of the latter group have been treated with propylthiouracil and or inorganic iodine following the administration of the radioactive iodine in an attempt to avoid the slight hyperthyroidism often noted one to two weeks after therapy. Not all authorities agree that this is of value. Our patients have been followed closely and many have been hospitalized for observation during this period.

The technique for doing these studies, evaluating the results, and deciding upon the therapy dose is not included in this paper. Any patient who is a diagnostic problem is discussed in Therapy Conference, and no patient is given therapy without first being discussed in Therapy Conference with cardiologists and internists.*

The actual administration of the I-131 to the patient is a simple procedure. At the present time we are using radioactive iodine in capsule form for the diagnostic studies so that all the patient has to do is swallow the capsule. For therapy, the iodine is administered in a tasteless liquid which the patient drinks like water. The average patient who comes in for a diagnostic work-up is given the I-131 one day and returns in 24 hours for the counting procedure. If a 6-hour uptake is desired, the time of administration is so set that the count can be made on the same day. Counting is a relatively brief test. Our laboratory uses a scintillation counter instead of a Geiger counter. The patient has no sensation from the I-131 or from the counting procedure which seldom takes more than 10 or 15 minutes. Some patients are scanned to determine the location and size of the thyroid

gland and to find any toxic nodules or occult nodules which may be suspicious of tumor. For this scanning the patient lies on a table underneath the scintillation scanning device and the activity in the gland is mapped out automatically without any subjective sensation. If a 72 hour PBI conversion ratio is desired the patient is asked to return 72 hours after the original diagnostic dose to have a 10cc. sample of oxalated blood taken.

There are several "hazards" which affect the accuracy of I-131 tests. In patients who are having routine uptake studies any previous administration of iodine, even that in vitamins, may interfere with the results. The same is true of propylthiouracil and several other drugs which will block the uptake of radioactive iodine. If the patient has been taking propylthiouracil, he may have a higher than usual uptake shortly after it is discontinued. If he has been taking thyroid extract, he may have an elevated uptake several weeks after it is stopped although it eventually will be depressed. We do not like to do radioactive iodine studies on patients who have had diagnostic gall-bladder or renal studies within three to six months. If the patient has been taking thyroid, we like to have him discontinue it for two months although occasionally we may get a good uptake in a patient who has been off it for only one month. A patient who has had previous surgery or I-131 therapy also may pose problems in evaluating the uptake response. In our cardiac patients mercurial diuretics often may be misleading. Furthermore, patients who have congestive failure with edema frequently have a slow uptake of radioactive iodine that is not a true reflection of the thyroid status.

We have presented a brief list of the variables which may influence uptake studies and which have encouraged us to see if we can adapt the in-vitro technique for wider use. In the in-vitro technique the patient is never exposed to radioactivity. If the in-vitro technique is desired,² blood may be drawn from the patient at any time, preferably prior to the administration of the radioactive iodine. This has the advantage

* Members of the Therapy Committee: Drs. A. Henry Clagett, Jr., J. Richard Durham, John Egan, Robert W. Frelick, and Leonard P. Lang.

that organic iodines given as therapy or in diagnostic x-ray studies such as IVP and cholangiograms will not interfere with the study. The blood is incubated with I-131 iodinated tri-iodothyronine solution and the percentage of uptake in the red cells is determined. This appears to be a reflection of thyroid function. Theoretically, this has the advantage of measuring the thyroid metabolism at the cell level. Otherwise, I-131 uptake is only a measure of the amount of iodine accumulated by the thyroid gland. Usually this is a function of thyroid activity but in some instances such as cretinous goiters or in Hashimoto's stroma there may be a high uptake. Also, where the gland is iodine starved there may be a high uptake in a normal gland or in a gland which is actually sub-normal in activity. Therefore, it is important to know as much as possible about the clinical status of each patient in order to best interpret the uptake results. The procedure is without injury to the patient and it is particularly useful for the patient who is afraid of the BMR breathing apparatus. Nervousness itself does not influence the result. Some patients who have a chemical PBI that is increased because they have been given previous iodine will be found to have a decreased I-131. Therefore, the chemical PBI and the I-131 uptake may supplement each other in discovering patients who have been taking iodides.¹

The radioactivity involved in the diagnostic study is minimal. The amount of iodine given is not enough to have any physiological effect. We try to restrict the I-131 therapy to patients above the ages of 35-40 even in the hyperthyroid non-cardiac patients. Above this age group there is little fear of complications such as development of thyroid cancer. Clinical experience with I-131 in the treatment of thyroid disease is now some 18 years old and so far there has been no evidence in humans that I-131 is a carcinogenic agent. Naturally there is not particular concern about genetic influence in the older age group. Occasionally there will be a patient who may develop a thyroid storm with I-131 therapy. More frequently, a week or two after therapy the patient will have a little swelling in the neck or may develop a mild cough or hoarseness

that may last for another week. There appear to be no other side effects or long-term radiation hazards. The question has been raised whether patients made hypothyroid or myxedematous will tend to become arteriosclerotic. Some studies have indicated that as the cholesterol rises there is a decreased turnover rate so that if the development of arteriosclerosis is increased by the hypothyroid state it is at a very slow rate. In most of our patients this would be of no clinical significance since many have such far advanced disease that without therapy they would not last long.

In 1954 Blumgart⁴ pointed out that radioactive iodine was of value for euthyroid patients with intractable angina and failure. For years, surgical thyroidectomy or anti-thyroid drugs had been used for certain patients to decrease the thyroid function. Radioactive iodine has proved to be a better method.³ Since there is no surgical risk, the patients can be made hypothyroid and the degree of hypothyroidism can be controlled by the administration of thyroid. This induction of hypothyroidism is easier and more certain with I-131 than with the anti-thyroid drugs. The rationale for treating the intractable cardiac patient by this method is obvious since cardiac output is geared to metabolic demand. By inducing a hypothyroid state the cardiac requirements of the decreased metabolic state may be met by a heart that has been impaired by organic heart disease. The etiology of the heart disease is of secondary importance.

Not every patient who is intractable to routine therapy is a candidate for I-131 therapy. Those most likely to be helped have congestive failure, but also have some evidence of cardiac reserve with a demonstrated ability to improve under intensive medical management. The patient with a rapidly progressive heart disease, or the terminal patient, is not likely to survive the period between therapy and the onset of hypothyroidism. Therefore, a well stabilized patient is ideal. The Therapy Committee has thrashed through many such problems. It is not always easy to decide whether a patient has had sufficient trial of conservative measures for supplemental I-131. There

seems to be little value in giving the drug to every terminal cardiac patient. Naturally, the patient who is already myxedematous or hypothyroid is not likely to benefit from treatment. Therefore, a pre-treatment evaluation including an I-131 uptake study is necessary to determine if the patient is a candidate for therapy. Since therapy often induces myxedema, a patient must be willing and able to follow through with his physician if supplemental low doses of thyroid medication become necessary. Cooperation from the patient is essential. Since the euthyroid gland normally takes up less radioactive iodine than the hyperthyroid gland, euthyroid patients require more radioactive iodine to irradiate the gland enough to induce hypothyroidism or myxedema. Blumgart and others have emphasized the desirability of inducing myxedema, and then controlling most of the undesirable effects of the myxedema with low doses of thyroid. Others have tried to give just enough radioactive iodine to induce hypothyroidism without myxedema. We have used both courses of therapy and are not yet certain in our own minds as to the best method of approach.

Some of our best results have been in patients who have been treated with I-131 in sub-myxedema (hypothyroid) doses. Unfortunately, this hypothyroidism is usually transient, not more than 4 to 12 months, and is followed by a return of the euthyroid state. This means that the patient may then need further I-131 therapy. On several occasions patients have not been followed as carefully as we would wish, have not returned for follow-up after showing initial improvement, or have gradually slipped into more trouble without the physician or patient realizing that he is losing the hypothyroidism. On the other hand, some patients definitely have been improved by this temporary respite and have been able to maintain improvement after returning to a euthyroid state. The latter group of patients, in contrast to the myxedematous group who may be very difficult to control with small doses of thyroid, suggest that the ideal approach would be to give sub-myxedema treatment to a patient who can be carefully followed. This ideal is difficult

to achieve. Our own experience includes many patients who died shortly after therapy. We were dealing with a "bad" group of cardiac patients, and some of our choices were probably patients who were too terminal to benefit from therapy. Other patients who showed no definite improvement have lived and are doing relatively well. It is difficult to know whether patients who show no great improvement but who are still living 6 months to several years later would have been so well if they had not had the I-131 therapy. Some have had to be treated more than once. Patients with intractable angina are frequently considered to be better candidates for I-131 therapy than those with intractable failure, although I think that some of the deaths we have seen in patients with intractable angina suggest that we delayed their treatment too long. Since angina is more subjective and more difficult to evaluate we find this group of patients difficult to choose. We feel that with our increasing experience we can achieve results (see table II) similar to those of Blumgart's survey.¹ Of his patients with angina pectoris, 40% had ex-

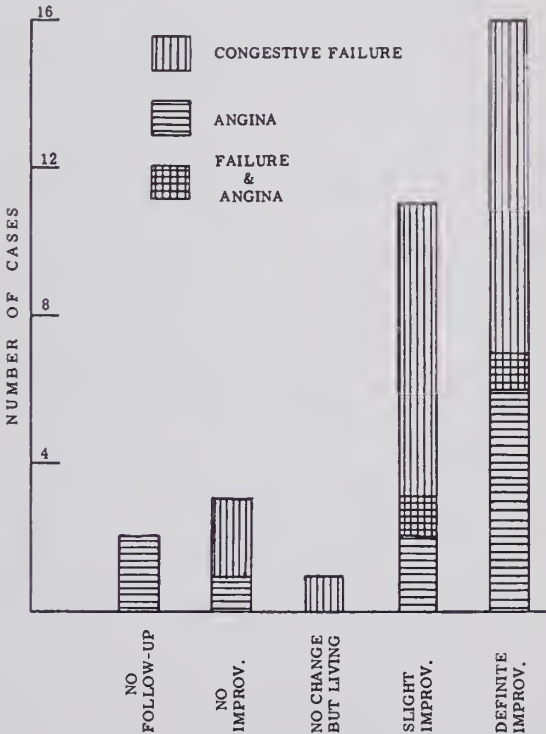


TABLE 2
Cardiac Patients—I 131 Therapy. No difference in ages or sex between groups—ages range 41-81 yrs.

cellent results, 35% were good, and 25% were not worth while. Of his patients with congestive failure, 20% were reported as excellent, 40% good, 40% not worth while. (See table 2.)

In summary, I-131 is a valuable agent in the diagnosis of hyperthyroidism, particularly that which is not clinically apparent in cardiac patients. The cardiac patient with unexplained tachycardia, fibrillation and failure may be an unrecognized hyperthyroid. In addition, I-131 is of value therapeutically both for patients who are recognized initially as toxic thyro-cardiacs, and for those whose thyrocardiac state is only picked up incidentally. In these patients I-131 gives dramatic results because they will improve by just bringing them

down to a euthyroid level. Also, a group of euthyroid cardiac patients with intractable failure and angina have been definitely benefited by inducing hypothyroidism with I-131.

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DIABETES DETECTION WEEK

Finding unknown diabetics and guiding them to medical care is a year round effort culminating in the drive during Diabetes Week. This drive is sponsored by the American Diabetes Association, which was founded by and is composed of physicians. The Association works through 42 local Affiliate Associations and through nearly 900 Committees on Diabetes organized within State and County Medical Societies.

The year-round effort is featured by an annual, nation-wide Diabetes Week, during which as many persons as possible are screened for diabetes.

IT IS IMPORTANT THAT ALL PRACTICING PHYSICIANS COOPERATE IN THE DIABETES DETECTION PROGRAM.

Helping to detect diabetes is one way of giving better medical care to more people. Out of every 160 patients that come into a physician's office, one may be an unknown diabetic. The physician who wants to improve the care of his patients will want to detect diabetes as early as possible in the people for whom he is medically responsible.

THE SIMPLEST TESTS FOR DETECTING DIABETES ARE AS FOLLOWS:

Get a urine specimen two hours after a full meal containing plenty of starch and test the specimen for sugar. Use one of these simple tests:

BENEDICT'S QUALITATIVE TEST
Place 2½ cc. (half a teaspoonful) of Benedict's Solution in a test tube. Add 4 drops of urine and shake well. Place the tube in boiling water for five minutes. Apply the color comparison chart to the liquid to determine the result. A cloudy green, brown, yellow, orange or red color means sugar in the urine. If it remains a clear blue, this will mean no sugar and a negative result.

CLINITEST. Place 5 drops of urine in a test tube. Rinse the dropper and add

10 drops of water. Next put in a Clinitest tablet. The mixture will boil; after it stops, wait 15 seconds. Then shake the tube and compare the color of the fluid with the color chart. Any shade of blue means a negative result — no sugar in the urine. Any other color means that sugar is present.

SUGAR TEST DENCO. Place Sugar Test Denco powder (a little less than a crushed aspirin) on a piece of white paper. Drop one drop of urine on the powder. If the color of the powder changes to black, the sample is positive — it contains a measurable amount of sugar. Disregard other color changes.

Caution: Blotting paper should not be used for the white sheets described above because it absorbs the urine before any reaction can take place.

CLINISTIX. Dip test end of Clinistix in urine (or moisten with a drop of urine, or pass through urine stream). Observe at exactly one minute. Negative: no blue color develops. Positive: moistened end turns blue.

TES-TAPE. Tear an inch and a half of tape from the dispenser, dip it into the specimen, remove and wait one minute. Negative: no color change. Positive: moistened end turns to some shade of green.

DREYPAK. This is produced by the American Diabetes Association for use particularly in mass screening. The individual takes the strip home, dips it quickly into a specimen of urine, lets it dry, and returns it — by mail or otherwise. The tester suspends the strip for one minute in a pan of boiling Benedict's Solution. If the filter paper turns cloudy green, yellow, orange or red, there is sugar in the urine. (Packs of 20 to 30 strips, held by a plastic clothespin, can be tested.)

Some of these testing materials may be available without charge through the local Committee on Diabetes. Please call Olympia 4-3310 after October 15. It is advisable

to use clean sterile bottles to obtain the specimens if they are collected outside the physician's office.

WHAT LABORATORY FINDINGS SUGGEST THE PRESENCE OF DIABETES?

1. The presence of any amount of glucose in the urine
2. Blood sugar values (expressed in mg. per 100 cc. blood) above the following levels should make one alerted to the presence of diabetes:
 - A. Venous blood sugar:
 1. Folin-Wu method — over 120 fasting, or post-prandial, two hours
 - B. Capillary blood sugar:
 1. Folin-Malmros method — over 120 fasting, over 140 after eating.
 2. True glucose value methods — over 120 fasting, over 140 after eating.

If the laboratory reports borderline values, verification should be made by further blood sugar determinations, or a glucose tolerance test, subsequent to three days of normal diet, containing a daily minimum of 250 Gm. of carbohydrate. If there is a complicating illness such as hyperthyroidism or infection, the confirmatory tests should not be performed until the illness has subsided. A family history is extremely important. Most diabetics are found where there is a positive family history.

IF A DIABETES DETECTION PROGRAM IS SET UP, HOW CAN YOU COOPERATE?

Most importantly, by testing your own patients. Test every patient who comes into the office during Diabetes Week. Try to test all patients once a year. Tell them of the importance of diabetes detection to themselves and the community, and advise them to have members of their families tested for glycosuria. Test all relatives of diabetics at all times, especially during Diabetes Week.

To improve the statistics on incidence, report to the Committee on Diabetes (of your Medical Society) the number of pa-

tients tested during Diabetes Week, the number showing glycosuria, and the number of these determined to be true diabetics.

You can also cooperate by offering your services to the Committee on Diabetes. It will need volunteers to give talks about the Diabetes Detection program — to businessmen, Parent-Teacher Associations, women's organizations, and other groups whose cooperation is essential if our unknown diabetics are to be guided to medical care. The services of physicians will be needed at testing centers, too.

HOW DOES THE MASS SCREENING PROGRAM GET PEOPLE TO THEIR PHYSICIANS?

Every individual tested is asked the name of his physician. If the test for glycosuria is negative, the individual is informed — and in some communities the doctor, too. If the test is positive, both are notified and the individual advised to see his physician for further examination. Sometime later there is a follow-up to help make certain that the advice has been or will be heeded.

The Diabetes Detection Drive can succeed only with the cooperation of the practicing physician. You are the first and main line of detection, as you are the first and only line of treatment. Your help is essential if unknown diabetics are to be brought under medical care and thus remain effective members of the community.

Our State Diabetic Society is called the Delaware Diabetes Association, which is the recently incorporated affiliate of the American Diabetes Association. The Delaware Diabetes Association has an active Committee on Diabetes Detection and Public Education, viz.; Dr. Leonard Tucker, Dr. Leroy R. Kimble, Dr. Wm. Thomas Hall, Dr. Harold A. Tarrant, Dr. Edward M. Bohan, Chairman, of Wilmington; Dr. Robert L. Klingel, Rehoboth Beach; Dr. J. R. Elliott, Laurel; and Dr. Floyd I. Hudson, Dover.

Any of these members will be glad to assist you during or before Diabetic Week, November 16 to 22. The address is the Academy of Medicine, Wilmington.

EXPERIENCES WITH PERCUTANEOUS NEEDLE BIOPSY OF THE LIVER*

NORMAN N. COHEN, M.D.,** WERNER J. HOLLENDONNER, M.D.,*** and
RALPH M. MYERSON, M.D.****

During the past three and one-half years 316 percutaneous needle biopsies of the liver have been performed on 300 patients hospitalized at the Philadelphia, Pennsylvania Veterans Administration Hospital. This paper summarizes our experiences with this procedure and attempts to correlate the biopsy findings with the clinical picture and the laboratory evaluation of liver function.

MATERIALS AND METHODS

The indications, contraindications, precautions and technique reported in the literature on previous occasions were followed¹⁻¹⁰. The Vim Silverman needle was used in all cases, and except for a few in-

stances, the intercostal, transthoracic approach was utilized. Exceptions to this approach were those cases in whom a large nodular mass presented subcostally or where it was desired to obtain tissue from the left lobe of the liver. Prior to the biopsy the patients were studied for bleeding tendencies and the prothrombin time was routinely checked. Following the biopsy the patient was kept at absolute bed rest for 24 hours during which time frequent blood pressure and pulse determinations were made.

RESULTS

The results of the effectiveness of liver biopsy are tabulated in Table I. Of the 316

TABLE I
RESULTS OF 316 PERCUTANEOUS NEEDLE BIOPSIES OF THE LIVER

Disease	No. Patients	Positive	Not Diagnostic	Failure of Procedure
Cirrhosis	105	91 (86.7%)	7 (6.7%)	7 (6.7%)
Metastatic Carcinoma ..	45	33 (73.3%)	10 (22.2%)	2 (4.4%)
Acute Hepatitis	31	21 (67.7%)	10 (32.3%)	0
Sarcoidosis	16	11 (68.7%)	4 (25%)	1 (6.3%)
Cholangiolitic Hepatitis.	11	9 (82%)	1 (9%)	1 (9%)
Tuberculosis	9	5 (55%)	4 (45%)	0
Hepatoma	7	4 (57%)	3 (43%)	0
Hemochromatosis	6	6 (100%)	0	0
Chronic Hepatitis	4	3 (75%)	1 (25%)	0
Biliary Cirrhosis	3	2 (67%)	1 (33%)	0
Hemolytic Anemia	3	3 (100%)	0	0
Hodgkin's Disease	3	0	3 (100%)	0
Cholangioma	2	0	2 (100%)	0
*Misc. Liver Diseases ..	6	4 (67%)	2 (33%)	0
Total Liver Disease ..	251	192 (76.5%)	48 (19.1%)	11 (4.4%)
No Hepatic Disease ..	65			0
Total	316			11 (3.5%)

* Includes one case each of chronic lymphatic leukemia, chronic myelogenous leukemia, berylliosis, constitutional hyperbilirubinemia, histoplasmosis, liver abscess.

biopsies attempted there were 11 cases in which the procedure was classified as un-

successful due to failure to obtain liver tissue, inadequate liver tissue, laboratory accidents or the presence of foreign tissue in the biopsy specimen. This failure rate of 3.5% is in keeping with that reported by

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other workers^{2,11,12}. Sixty-five biopsies were performed in patients in whom the diagnosis of a normal liver was made. This group included a number of patients in whom abdominal or thoracic neoplasms were present and the presence of a normal liver was subsequently confirmed at operation or autopsy. Others in this group were patients with obscure diseases in whom a liver biopsy was done in an attempt to establish a diagnosis. Of the remaining 251 with hepatic diseases, liver biopsy was considered positive in 192 or 76.5%. A positive biopsy was defined as one which established the diagnosis or confirmed the previously made clinical impression. As noted in Table I a high yield of positive biopsies was obtained in patients with cirrhosis of the liver, metastatic carcinoma, viral hepatitis, cholangiolitic hepatitis, sarcoidosis and hemochromatosis.

The impressive results of this procedure in the diagnosis of focal lesions such as metastatic carcinoma of the liver have been reported repeatedly^{9,13,14}. In the present series, 73.3% of 45 biopsies were positive for metastatic neoplasm. Of primary neoplasms of the liver, 4 of 7 hepatomas were diagnosed by needle biopsies. Two cholangiomas were missed. A correlation of the results of liver biopsy with alkaline phosphatase determinations substantiates the value of the latter laboratory study in primary and metastatic neoplasms of the liver. In this group of patients, the alkaline phosphatase was elevated in 89%.

The value of liver biopsy was well demonstrated in the granulomatous diseases including sarcoidosis, tuberculosis, histoplasmosis and berylliosis. Positive tissue was obtained in 70% of this group. This coincides with the figures of others in this type of case^{1,15}.

Biopsy was positive in a high percentage of cases with diffuse parenchymatous diseases of the liver. Only 6.7% of successful biopsies were not diagnostic in patients with cirrhosis of the liver. In these cases the possibility of obtaining normal appearing tissue from a regenerating hepatic nodule should be entertained. Although 32% of biopsies in acute hepatitis were not considered to be diagnostic, many of these were

performed in the later stages of the disease when the acute pathological changes may well have disappeared. Of six cases of hemachromatosis the diagnosis was successfully established in all with the use of appropriate staining technique.

COMPLICATIONS

Hemorrhage was the only serious complication encountered. It occurred in two of the patients, one of whom developed a hemorrhagic pleural effusion following the biopsy procedure. This was treated by thoracentesis with an uneventful recovery. Serious intra-abdominal hemorrhage occurred in a 36 year old negro man with tuberculosis of the liver and jaundice of long duration. At emergency laparotomy, a 5 mm rent in the liver capsule was found. Recovery was uneventful. There were no fatalities in this group. In a review of 20,016 biopsies of the liver, Zamchek and Klausenstock reported an "adjusted" mortality of 0.085%¹⁶. Terry noted an incidence of significant hemorrhage in 0.2% of 7,532 biopsies¹⁷. In the present series, both patients whose biopsies were complicated by hemorrhage had normal prothrombin times and it was felt that unfortunate positioning and movement of the needle and/or the patient was responsible for the bleeding. In 25 patients whose prothrombin times range from 30 to 50% of normal, there was no instance of hemorrhage.

DISCUSSION

The value of various diagnostic tests should be reappraised from time to time and this was the primary purpose of this study. Any diagnostic procedure which carries a potentially significant morbidity or mortality should be carefully evaluated as to its usefulness in diagnosis from the standpoint of its use in a general hospital. The evaluation should be approached both from the viewpoint of safety and diagnostic accuracy. From the data presented, it is concluded that liver biopsy is a useful procedure in the diagnosis of cirrhosis of the liver, metastatic and primary carcinoma of the liver, viral hepatitis, cholangiolitic hepatitis, hemachromatosis and in the granulo-

matous disorders including sarcoidosis and tuberculosis. From the few cases studied, it appears to be of little or no benefit in the diagnosis of various lymphomata. In many patients, it has been of value in preventing exploratory laparotomies in patients with carcinoma. A negative biopsy for carcinoma, however, by no means excludes the possibility of a primary or metastatic neoplasm. Improvement in the percentage of positive biopsies may result from proper macroscopic examination of the biopsy tissue as advocated by Terry¹⁸ or by the use of I₁₃₁ labeled serum albumin as an aid in localizing focal lesions¹⁹.

This study confirms the findings of many others that needle biopsy of the liver is a valuable diagnostic tool. The hazard to the patient when the biopsy is performed by experienced personnel is very slight. The procedure increases the diagnostic accuracy by a significant percentage felt to warrant this risk.

SUMMARY AND CONCLUSIONS

The results of 316 percutaneous needle biopsies performed on 300 patients over a three and one-half year period has been presented and the results of the diagnostic value of this procedure tabulated.

Liver biopsy established the diagnosis or confirmed the clinical impression in 76.5% of patients with diseases of the liver. High degrees of positive results were obtained in cirrhosis of the liver, metastatic carcinoma, hepatitis, hemachromatosis and in the granulomatous diseases of the liver.

Two hemorrhagic complications were encountered. In one patient a bloody pleural

effusion treated satisfactorily by thoracentesis was encountered. In another, persistent intra-abdominal bleeding necessitated an abdominal operation. There were no fatalities.

The authors feel that percutaneous liver biopsy has proved to be of sufficient diagnostic value to warrant the relatively slight hazards of the procedure. A failure rate of 19.1% where liver biopsy was not diagnostic of the underlying diseases emphasizes that this procedure is no panacea in the diagnosis of liver disease. In such cases, other diagnostic measures or exploratory laparotomy are necessary.

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MENTAL REHABILITATION OF THE PATIENT WITH MYOCARDIAL INFARCTION

ANTHONY R. TORTORA, M.D.*

The increasing incidence of myocardial infarction and the frequent recovery of such patients are producing a new responsibility for the medical practitioner: rehabilitation of the coronary patient. A discussion of treatment of coronary attacks should emphasize the need for emotional readjustment. This subject was stressed in an earlier paper which considered the hazards of prolonged bed rest.¹

Coronary arterial disease is primarily a chronic process and our concern should be for more than just the treatment of acute phases of myocardial infarction. Medical management of acute aspects of the "heart attack" is so exciting to the physician that the psychological handling may be overlooked. However, he must make a concerted effort to restore the patient to a full life. This is complete rehabilitation. One of the essential aspects of rehabilitation is the prevention of psychologic invalidism. The physician plays an active role in the genesis of invalidism. Since a patient recovered from an acute "heart attack" can be employed again, the need for averting iatrogenic psychologic crippling is even more cogent².

Despite an increase in the number of coronary attacks, more patients survive. This is due to a better understanding of cardio-vascular physiology and the basic mechanisms which produce coronary disease. Therefore, a greater need exists for psychologic handling of these patients.

The thought of a "heart attack" brings fear to the mind of the patient. Later, it creates a new way of life to which the patient must adapt himself. He may live a

long time and needs to be encouraged to find useful activity and to maintain an interest in life. The attending physician should not be helpless in this situation. Nor should his help consist of a few sympathetic and encouraging words. Important from the onset is an encouraging attitude on the part of both the physician and the family, and a hopeful attitude on the part of the patient. The patient who has had a coronary attack should be started on a rehabilitation program promptly.

The readjustment of most patients can be accomplished with the help of the family physician and the family. This can be achieved only by good rapport, i.e., doctor-patient relationship from the onset.³ The patient should have a minimum of resistance and a maximum of genuine co-operation. Excessive or unwarranted reassurance and early promises seldom fool the patient. Maximum long range benefit can be achieved only if the physician treats his patient as a totally integrated, bio-psychosocial entity. This requires not only the knowledge of the basic medical science but also a sensitivity to the subtle manifestations of the patient's attitude and awareness of the interpersonal processes which function between him and the patient. The physician who is sufficiently mature in his interpersonal orientation will remain objective although he may react towards his patient with sympathy, concern, admiration or even, at times, with justifiable anger.⁴ It must be remembered that the psyche and soma are biologically one and that there can be no dichotomous arrangement between mind and body.

Total patient therapy includes control of emotional factors. Fundamental to successful rehabilitation is the patient's willingness

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to follow his prescribed regimen. Frequently, due to fear and anxiety, the patient begins to doubt his ability to recover. Or he may refuse to accept the reality of his disease. In calming the patient and providing a sense of security, means should be employed to facilitate a normal perspective. Although fear and anxiety are universal phenomena, their meanings are completely personal and the reaction of the sufferer is the essential guide to care. Some patients can be made to accept the condition philosophically with an optimistic outlook and may proceed smoothly and rapidly. Other patients may proceed at a slower pace.

The physician directs but also must manage the patient for years. It usually is not desirable to tell the patient the extent of the "attack"; on the other hand one should not minimize it. This depends on the sensitivity and vulnerability of the patient but he should be made to realize that he has a chronic condition which will require frequent observation and psychotherapeutic help.

Many devices must be employed in order to bring a proper psychotherapeutic approach to emotional disturbances as they arise. Gentleness and delicacy have been stressed by many. However, over-sympathetic understanding may retard therapeutic progress. Achievement of effective re-adjustment does not demand cruelty, but it does require a masculine type of firmness.⁵ The physician who gives willingly of his time for ample discussion not only is fulfilling a professional obligation but also is employing a potent therapeutic tool. Regardless of the intelligence or outward calmness of a patient, an element of trepidation always underlies the "attack." Moreover,

the patient has some psychologic regression so that the physician assumes a dominant position and his relationship to the patient tends to resemble the child-parent relationship of the patient's earlier years. Detailed explanations, given unhurriedly and genuinely, are essential if the patient is to derive the fullest benefit. This approach can serve many purposes. Misunderstanding is avoided and full co-operation is encouraged; fear and anxiety are lessened; a close patient-physician rapport is established and the physician's understanding, sympathy and patience are helpful in avoiding iatrogenic disease.

With this in mind, what advice should be given a patient in regard to activity? It is well-documented that almost as many attacks of myocardial infarction occur when the patient is at rest as when he is exerting himself. I see no justification for prohibiting all exertion. I believe the patient should be allowed those activities which do not cause chest discomfort and dyspnea. The presence of symptoms will determine how nearly normal his life may be.

Successful rehabilitation, therefore, depends largely on the ability of the attending physician to control, neutralize and perhaps eliminate the anxiety and fears of the "heart attack" by the inculcation of the positive virtues of optimism, hope, and courage.

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MEDICAL COURT CASES



HOWARD NEWCOMB MORSE
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"AUTHORIZATION FOR EXTENT OF OPERATION"

BANG VS. CHARLES T. MILLER HOSPITAL AND DR. FREDERIC E. B. FOLEY

Supreme Court of Minnesota 88 N. W. 2d 186

This was an action for damages for an alleged assault or unauthorized operation by Dr. Frederic E. B. Foley on Helmer Bang, the plaintiff-patient. The District Court of Ramsey County, Minnesota, entered an order denying the plaintiff's alternative motion to vacate dismissal of his action or for a new trial, and he appealed. The Supreme Court of Minnesota reversed the order of the lower court and granted a new trial.

Helmer Bang began having urinary trouble. He consulted a doctor in his home town of Austin, Minnesota, who sent him to the hospital for a cystoscopic examination which was made by two local doctors in Austin. Bang testified that they informed him of an enlargement of the prostate gland and bladder soreness and recommended either Rochester or Dr. Foley in St. Paul.

Bang consulted with Dr. Foley at the latter's office in St. Paul. Dr. Foley testified that at that time the patient complained of diminished size and force of the urinary stream and increased frequency of urination. He said that the patient described various urinary symptoms and that a rectal examination of the prostate was performed. Not being certain at that time of the exact nature of the patient's ailment, Dr. Foley informed the patient that he wished to make a cystoscopic examination the follow-

ing day and suggested that the patient be admitted to the Charles T. Miller Hospital in St. Paul for further investigation, which was done. He said that he informed his patient "that the purpose of his going into the hospital was for further investigation with a view to making a prostate operation if the further examination showed that that was indicated."

The important question for determination was whether the evidence presented a fact question for the jury as to whether the patient consented to the severance of his spermatic cords when he submitted to the operation. Dr. Foley testified on cross-examination that he did not tell the patient at the time of the office visit that any examination he had made or was going to make had anything to do with the spermatic cords, nor did he recall explaining to the patient what a prostate gland operation involved. He also said that the patient's life was in no immediate danger because of his condition on that day.

When questioned as to whether he had any conversation with Dr. Foley at the operating table or during the entire period when he was in the operating room, Bang replied that with the exception of a morning greeting "and stuff like that" nothing was said to him with reference to the opera-

(Continued on page 302)

+ Editorials +

DIABETES DETECTION WEEK

There are many diseases, cancer and coronary artery disease being two outstanding examples, about which our knowledge of prevention and treatment is meager. It behooves us, therefore, to make good use of every known diagnostic and therapeutic aid for conditions about which our knowledge is more abundant. One of these conditions is diabetes.

The Delaware Diabetes Association is

undertaking a commendable program of education, both public and professional. The professional portion of this program is more of a reminder than an introduction of new material. While one week each year is set aside as Detection Week, the Society urges physicians to be at all times alert to the possibility of this disease as a diagnosis.

It seems to be the same old story of "not looking" rather than "not knowing."

ATOMS FOR PEACE

The benefits of having a Radioactive Isotope Laboratory in the community are many. At first thought, one might consider this laboratory merely as an adjunct in the treatment of malignant disease. While it is of definite value in this field, that is only a small portion of its full value.

It has now become indispensable in the diagnosis and treatment of diseases of the thyroid gland. By the same token it is of value in the treatment of several types of heart disease. New methods are being described almost daily and it is obvious that this branch of medicine is rapidly growing and has far to go in the future.

IATROGENIC DISABILITY

It is pathetic to see a patient recover from a severe illness such as an infarct of the myocardium and then spend his remaining days in a state of inactivity and fear because of fear on the part of the attending physician. Much has been written on the subject of rehabilitation. Nowhere in medicine is rehabilitation more important than in the patient who has had a heart attack. While we sometimes think of rehabilitation as the procedures prescribed

during the period between the end of the acute illness and the patient's return to a normal life, it really is an essential part of treatment that should begin at the onset of the illness. The attitude of the physician can be a factor that determines success or failure. As Axel Munthe stated: "... there is no drug as powerful as hope ... the slightest sign of pessimism in the face or words of a doctor can cost the patient his life".

tion. The patient admitted that he did not expect to tell the doctor what to do; that he had faith in him; and that he did not expect to tell him how to perform the operation. He said that he expected the doctor would operate to do what was necessary to right and cure his condition. He testified that he did not ask the doctor what he in-

tended to do and left it up to him to do the right thing.

The Supreme Court of Minnesota held that the question as to whether the patient consented to the severance of his spermatic cords was a fact question for the jury and that it was error for the lower court to dismiss the action.

“CORRECTIVE MEASURES NECESSITATED BY AN OPERATION”

HOPKINS VS. UNITED STATES

District Court of the United States for the Western District of Missouri 152 F. Supp. 473

This was a malpractice action under the Federal Tort Claims Act. Since early childhood the plaintiff-patient had a disease known as fibrous dysplasia involving the right frontal area of her head. The disease was progressive and caused a marked thickening of the right frontal bone, pressing on the right optic nerve and the right orbit, causing a partial loss of vision.

She was admitted to the Veterans' Administration Hospital in Kansas City, Missouri, and after extensive investigation and examination, it was concluded that surgery was necessary to relieve the pressure on the optic nerve and retard the failing visual acuity of the right eye. It was concluded that the operation was to be a craniectomy, a piece-meal removal of the affected bone of the frontal area, to relieve pressure on the optic nerve and to remove pressure on the brain. There were to be at least two operations, the first to remove the diseased bone and to make a mold of the defect in the

skull, and the second to install a metal plate which would be made from the mold taken during the first operation. The proposed operative procedure was discussed fully with the patient, she agreed to the operation, and she was consequently operated upon.

The patient contended that the operating surgeon negligently placed the metal plate below the right supra orbital ridge, causing pressure and inability to close the right eye. Subsequently, the necessity for correction and readjustment of the plate became manifest.

The Court, in holding the doctor not liable, declared: "Negligence cannot be inferred simply . . . from the fact that the metal plate may have required subsequent adjustment. . . . While I am not persuaded that the operations were unsuccessful for the purposes for which they were intended, even an unsuccessful result is not evidence of negligence."

STATE SOCIETY PLANS INSTITUTE ON PREMATURE CARE

An all-day session on care for the premature infant will be held Wednesday, December 3, at the Alfred I. du Pont Institute near Wilmington. Sponsored jointly by the Committee on Education of the Medical Society of Delaware and by the State Board of Health, the program will feature faculty from the New York Hospital, Cornell Medical Center, headed by Dr. Murray Davidson. Discussions will include practical and theoretical implications of feeding, anemias, infections, including staphylococcal infection, resuscitation and environ-

mental control. There will be, in addition, demonstrations and discussions of special equipment.

Because of the team aspects of premature care, the program will be designed both for physicians and for nurses involved in this work. We hope that doctors and hospitals will make a special effort to encourage nurses to attend. All physicians in the Society, as well as all house staff members, will receive formal announcements of the program within the next few days.

PLEASE HELP IN SCREENING MATERNAL DEATHS

The work of the Medical Society of Delaware's Committee on Maternal and Infant Mortality is generally conceded to be valuable, particularly its detailed review of all deaths involving pregnancy or the newborn. This task, difficult already, is further complicated by the occasional failure of some physicians to specify that pregnancy existed when filling out death certificates in cases in which the direct cause of death

was unrelated to the condition. This means that the Bureau of Vital Statistics, which refers maternal deaths to the Committee for study, is unable to pick up these cases. Since the criteria of the study call for review of all deaths of all expectant mothers, regardless of cause, the Committee asks that you note pregnancy on the death certificate whenever it exists, regardless of its role in the patient's death.

REPORT OF INTERNATIONAL MEDICAL MEETING

ALLEN C. WOODEN, M.D.

This is a first hand report of the XVIth International Congress of the History of Medicine. This year's Congress took place at Montpellier, France, from the 22nd to the 28th of September. The Congress members were guests of the Medical School of the University of Montpellier, one of the oldest medical schools in the world. The official language of the Congress was French, but this did not make too great a language barrier, since most of the members spoke more than one language.

Our host, the medical faculty of Montpellier, were most hospitable, making our stay enjoyable with many invitations to the governing bodies of the town, the mayor, chief of City Council, the Chamber of Commerce, etc. The members were also invited to the private homes (chateaux) of the Viscount and Viscountess de Soporta for a wonderful musical evening. The faculty also arranged historical side trips to cover almost the entire area immediately surrounding the charming ancient city of Montpellier.

Many of the delegates were outstanding men in medical fields other than medical history. Present among the distinguished guests were outstanding surgeons, psychiatrists, internists, dermatologists, etc. Representing the United States were nine physicians, two librarians, and one historiographer.

The papers presented at the Congress were in general of a superior quality and reflected a tremendous amount of personal research on the part of the authors. All of the European countries sent representatives, Russia being represented by six outstanding medical historians.

The topics covered reflected the medical background of Montpellier and the medical school's contribution to development of great clinical teachers and clinical hospitals throughout Europe and France in particular.

From a personal viewpoint, the greatest

value of this meeting was the friendly feeling of all the delegates and their willingness to share ideas. The history of medicine is merely a study of the growth of ideas dealing with human ills and their treatment through the ages.

How would you like to spend about a week in the middle ages? Well I did and found it most enlightening. As a historian I have spoken many times of the Monastery herb gardens, the life living conditions of the people of the walled cities, the poor sanitation, etc. Now it is with a feeling of *having been there* that I can adequately describe the beauty of the medieval abbey with its well kept herb gardens (where simple Galenical pharmaceutical drugs were grown and prepared). I can feel that presence of many thousands of people crowded in the poorly lighted and ventilated walled cities with their massive gorgeously decorated central cathedrals, the ghetto with its towers, iron gates, the narrow streets, university towns with their educational buildings usually surrounding a great Cathedral Church — this is enough of the middle ages!

Now for a description of the medical school—Montpellier has all modern buildings for its teachings, retaining many of the old structures for a reminder of the long-dead grandeur of the past. The library is magnificent and it contains many of the original first editions of the incunabula. A unique feature of the school is a joint anatomical museum containing the anatomical preparations, sculpture, and collection of many distinguished medical graduates.

In conclusion, may I say that a complete resume of all the papers delivered at the Congress may be found at the Delaware State Medical Library. Any one sufficiently interested in the historical ascent may consult me personally concerning pictures of all the medieval institutions described in this report.



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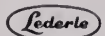
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Pyrimidine Maleate	15 mg.
Methylparaben	4 mg.
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Bottle of 4 oz.

- adenitis
- sinusitis
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prevents the multifarious sequelae



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in cases of tension

Serpate®

(Reserpine, Vale)

... the preferred drug where anxiety or emotional agitation must be controlled

- ... provides sedation without hypnosis, a sense of relaxed well being and tranquility
- ... effects a gradual and sustained lowering of elevated blood pressure in patients with mild, labile or essential hypertension

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SERPENTINA

in cases of hypertension

Rauval®

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... double assayed to insure optimal therapeutic effect
tested chemically to insure total alkaloid content
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... ideal therapy in labile and moderate hypertension or as adjunctive therapy in severe hypertension

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One of the most precious American Heritages is the right to worship as you please. But protecting our American heritages costs money—because *peace costs money*.

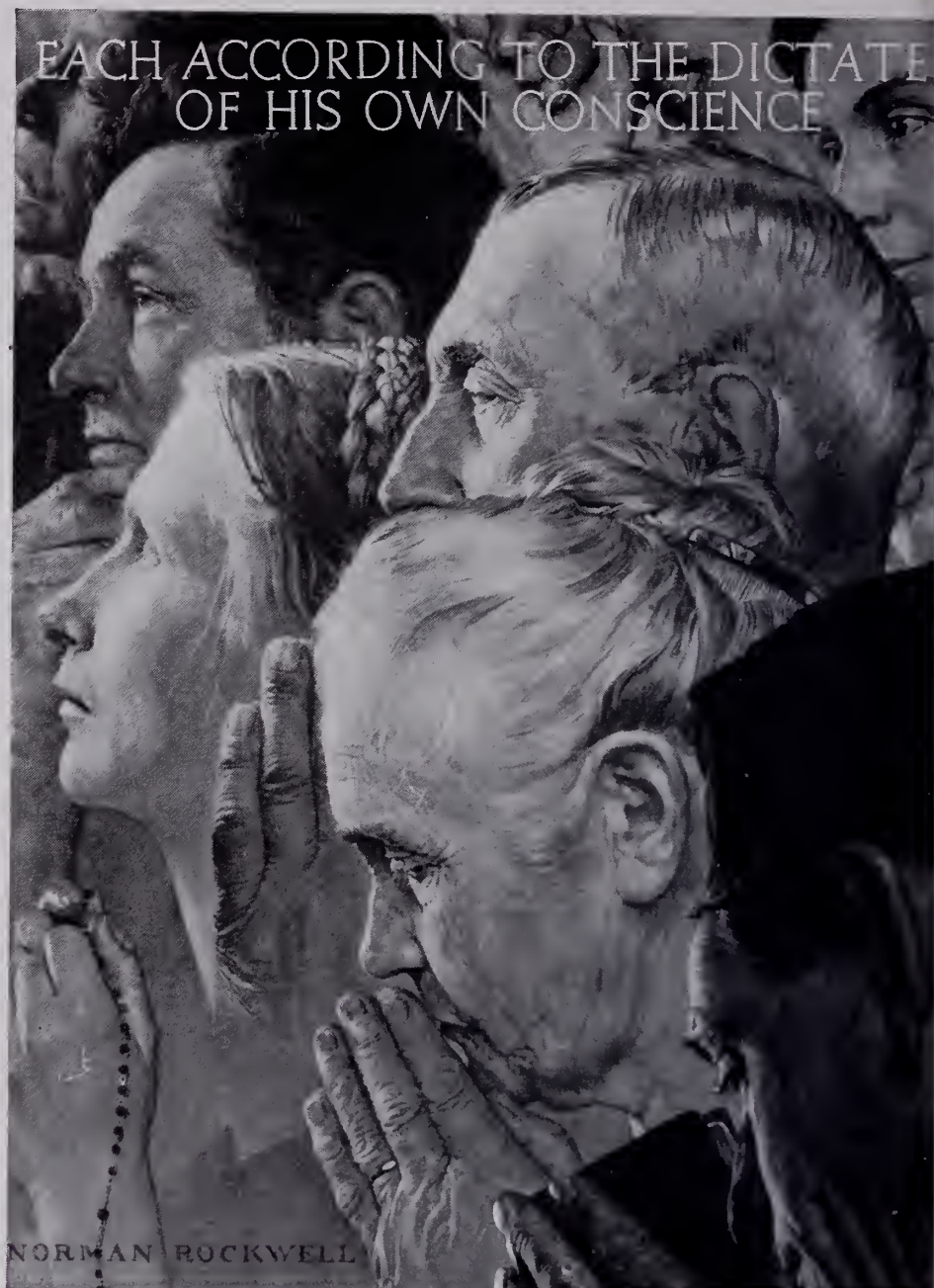
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Joint inflammation and muscle spasm are the two elements most responsible for disability in rheumatic-arthritic disorders—and MEPROLONE is the one agent that treats both.

MEPROLONE suppresses the inflammatory process and simultaneously relieves aching and stiffness caused by muscle spasm, to provide greater therapeutic benefits and a shorter rehabilitation period than any single antirheumatic-antiarthritic agent.

MEPROLONE-2 is indicated in cases of severe involvement, yet often leads to a reduction of steroid dosage because of its muscle-relaxant action. When involvement is only moderately severe or mild, MEPROLONE-1 may be indicated.

SUPPLIED: Multiple Compressed Tablets in three formulas: MEPROLONE-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 100). MEPROLONE-1 supplies 1.0 mg. prednisolone in the same formula as MEPROLONE-2 (bottles of 100). MEPROLONE-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 30).

a

Because muscles move joints, both muscle spasm and joint inflammation must be considered in treating the rheumatic-arthritic patient . . .



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multiple compressed tablets •

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THE FIRST MEPROBAMATE-PREDNISOLONE THERAPY



MEPROLONE is the one antirheumatic-antiarthritic that exerts a simultaneous action to relax muscles in spasm and to suppress joint inflammation...

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Therefore, **MEPROLONE** does more than any single agent to help the physician shorten the time between disability and employability.



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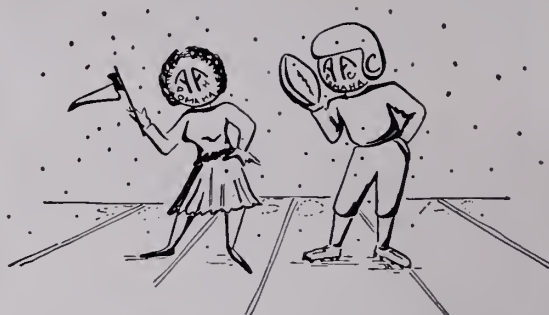


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all cold symptoms

New timed-release tablet provides:

...the superior decongestant and antihistaminic action of Triaminic

...non-narcotic cough control as effective as with codeine, but without codeine's drawbacks

...an expectorant to augment demulcent fluids

...the specific antipyretic and analgesic effect of well-tolerated APAP

...the prompt and prolonged activity of timed-release medication

Each TUSSAGESIC Tablet contains:

TRIAMINIC® 50 mg.
(phenylpropanolamine HCl 25 mg.;
pheniramine maleate 12.5 mg.;
pyrilamine maleate 12.5 mg.)

Dormethan (brand of dextro-methorphan HBr) 30 mg.

Terpin hydrate 180 mg.

APAP (N-acetyl-para-aminophenol) . 325 mg.

Tussagesic Tablets provide relief from *all* cold symptoms in minutes, lasting for hours.

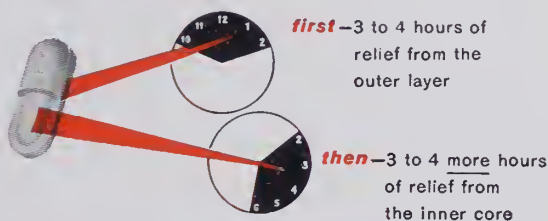
Dosage: One tablet in the morning, mid-afternoon, and in the evening, if needed. The tablet should be swallowed whole to preserve the timed-release action.

To reduce upper respiratory congestion and irritating secretions.

For non-narcotic control of the cough reflex.

To augment demulcent respiratory secretions.

For specific, highly effective antipyresis and analgesia.



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Introduce new Panalba*

(tetracycline Phosphate plus Albamycin**)

Introduce
your
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antibiotic
of first resort

Effective against more
than 30 common pathogens,
even including
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Available forms:

Panalba Capsules, bottles of 16 and 100 capsules. Each capsule contains:

tetracycline phosphate (tetracycline phosphate complex) equivalent to tetracycline hydrochloride 250 mg.
Albamycin (as novobiocin sodium) 125 mg.

Panalba KM †† Flavored Granules. When distilled water is added to fill the bottle, 1 teaspoonful (5 cc.) contains:

tetracycline (tetracycline) equivalent to tetracycline hydrochloride 125 mg.
Albamycin (as novobiocin calcium) 62.5 mg.
Sodium metaphosphate 100 mg.

Dosage:

Panalba Capsules
Adult dosage is 2 capsules q.i.d.

Panalba KM Granules
For the treatment of moderately acute infections in infants and children, the recommended dosage is 1 teaspoonful per 15 to 20 lb. of body weight per day, administered in 4 equal doses. Severe or prolonged infections require higher doses. Dosage for adults is 2 to 4 teaspoonfuls 3 or 4 times daily, depending on the type and severity of the infection.



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starts
to



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in delicious chocolate-like nuggets*



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tops with adults, too.

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Vitamin D	1,000 Units*
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Vitamin E	2 Units†
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Vitamin B-2	2.5 mg.
Vitamin B-6	1 mg.
Vitamin B-12 Activity	3 mcg.
Panthenol	5 mg.
Nicotinamide	20 mg.
Folic Acid	0.1 mg.
Biotin	30 mcg.
Rutin	12 mg.
Calcium Carbonate	125 mg.
Boron	0.1 mg.
Cobalt	0.1 mg.
Fluorine	0.1 mg.
Iodine	0.2 mg.
Magnesium	3.0 mg.
Manganese	1.0 mg.
Molybdenum	1.0 mg.
Potassium	2.5 mg.

*U.S. Units

Dose: One Nugget per day
Supplied: Boxes of 30—one
month's supply
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“ankle-itis”

there's pain and
inflammation here...

it could be mild
or severe, acute or
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early rheumatoid arthritis

more potent and comprehensive treatment than salicylate alone

assured anti-inflammatory effect of low-dosage corticosteroid¹ . . . additive antirheumatic action of corticosteroid plus salicylate²⁻⁵ brings rapid pain relief; aids restoration of function . . . wide range of application including the entire fibrositis syndrome as well as early or mild rheumatoid arthritis

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Acute conditions: Two or three tablets four times daily. After desired response is obtained, gradually reduce daily dosage and then discontinue.

Subacute or chronic conditions: Initially as above. When satisfactory control is obtained, gradually reduce the daily dosage to minimum effective maintenance level. For best results administer after meals and at bedtime.

Precautions: Because SIGMAGEN contains prednisone, the same precautions and contraindications observed with this steroid apply also to the use of SIGMAGEN.



in
any
case
it calls for

Sigmagen[®]

corticoid-salicylate compound tablets

Composition

METICORTEN [®] (prednisone)	0.75 mg.
Acetylsalicylic acid	325 mg.
Aluminum hydroxide	75 mg.
Ascorbic acid	20 mg.

Packaging: SIGMAGEN Tablets, bottles of 100 and 1000.

References: 1. Spies, T. D., et al.: J.A.M.A. 159:645, 1955. 2. Spies, T. D., et al.: Postgrad. Med. 17:1, 1955. 3. Gelli, G., and Della Santa, L.: Minerva Pediat. 7:1456, 1955. 4. Guerra, F.: Fed. Proc. 12:326, 1953. 5. Busse, E. A.: Clin. Med. 2:1105, 1955. 6. Sticker, R. B.: Panel Discussion, Ohio State M. J. 52:1037, 1956.

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Each tablet contains:

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Phenacetin	150 mg. (2½ grains)
Caffeine	30 mg. (½ grain)
Demerol hydrochloride....	30 mg. (½ grain)

Average Dose:

1 or 2 tablets.

Narcotic blank required.

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250 mg., 125 mg.

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glucosamine potentiated tetracycline with nystatin
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For relief of symptoms and malaise of the common
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REFERENCES: 1. Carlozzi, M.: Ant. Med. & Clin. Therapy 5:146 (Feb.) 1958. 2. Welch, H.; Wright, W. W., and Staffa, A. W.: Ant. Med. & Clin. Therapy 5:52 (Jan.) 1958. 3. Marlow, A. A., and Bartlett, G. R.: Glucosamine and Leukemia. Proc. Soc. Exp. Biol. & Med. 84:1953. 4. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 5. Nathan, L. A.: Arch. Pediat. 75:251 (June) 1958. 6. Cornbleet, T.; Chesrow, and Barsky, S.: Ant. Med. & Clin. Therapy 5:328 (May) 1958. 7. Stone, M. L.; Sedlis, A.; Bamford, J., and Bradley, W.: Ant. Med. & Clin. Therapy 5:322 (May) 1958. 8. Harris, H.: Clin. Rev. 1:15 (July) 1958.

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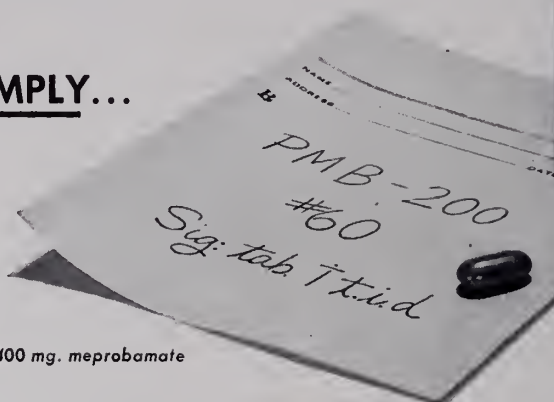
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- * 1. Welsh, A. L., and Ede, M.: J.A.M.A. 166:158, 1958.
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4. Bleiberg, J.: Am. Practitioner 8:1404, 1957.
5. Clyman, S. G.: Postgrad. Med. 21:309, 1957.

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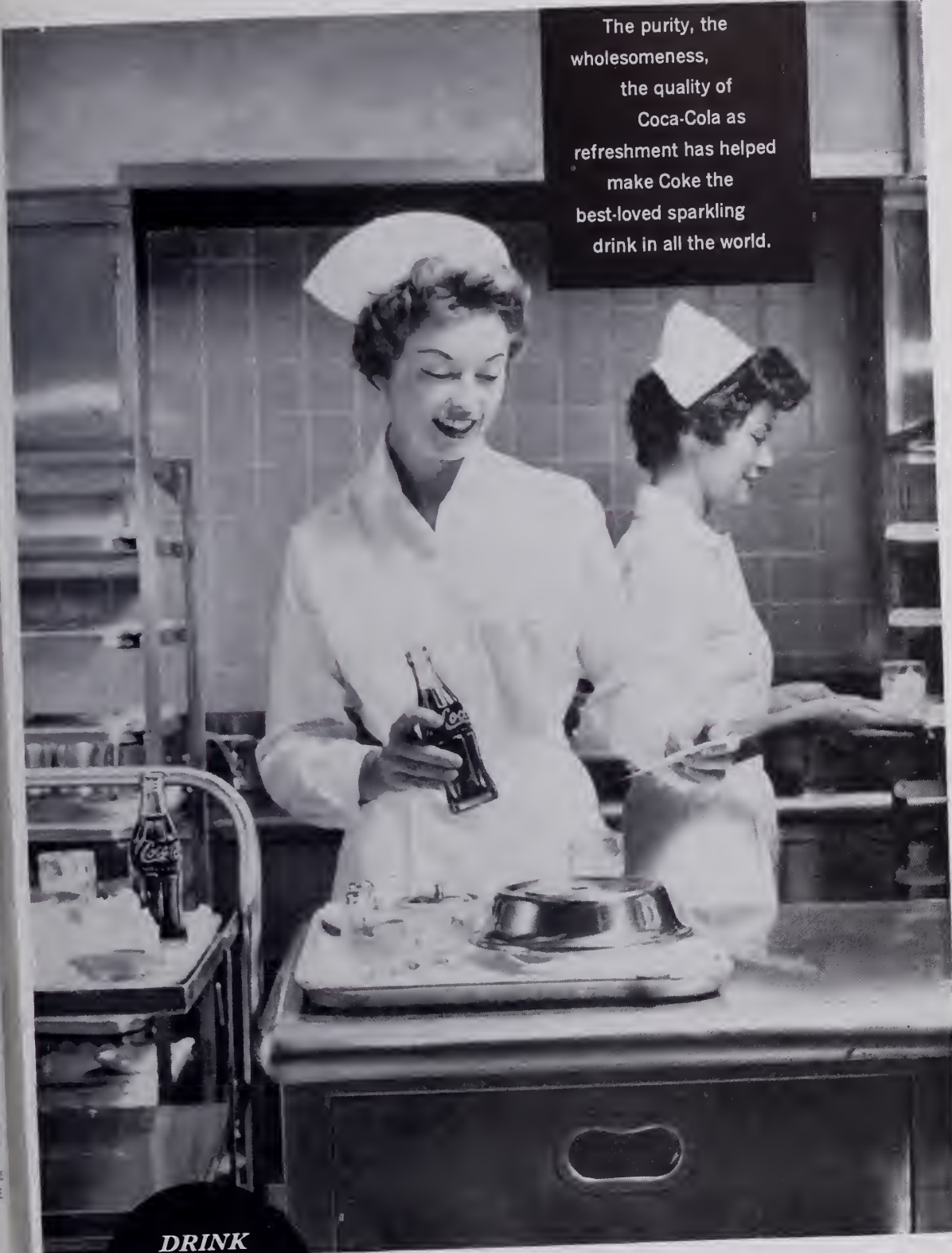
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FINNERTY, F. A., Buchholz, J. H. and Tuckman, J.: J.A.M.A. 166:141, Jan. 11, 1958.

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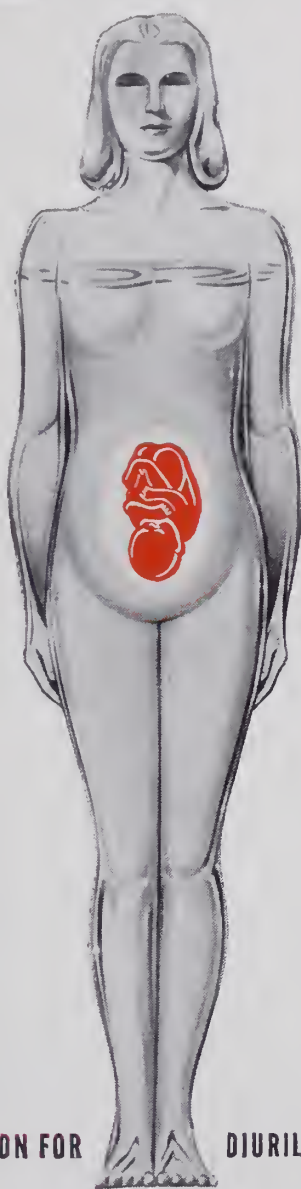
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caused an excellent
diuresis, with
reduction of edema,
weight, blood pressure,
and albuminuria....”



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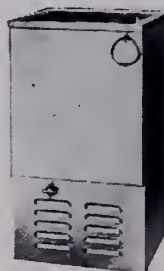
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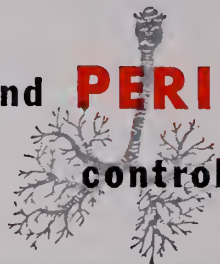
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2. Editorial: *New England J. Med.* 258:48-49, 1958.

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(1) Hagedorn, A. B.: Proc. Staff Meet. Mayo Clin. 32:705 (Dec. 11) 1957.

(2) Best, W. R.; Louis, J., and Limarzi, L. R.: M. Clin. North America (Jan.) 1958, p. 3.

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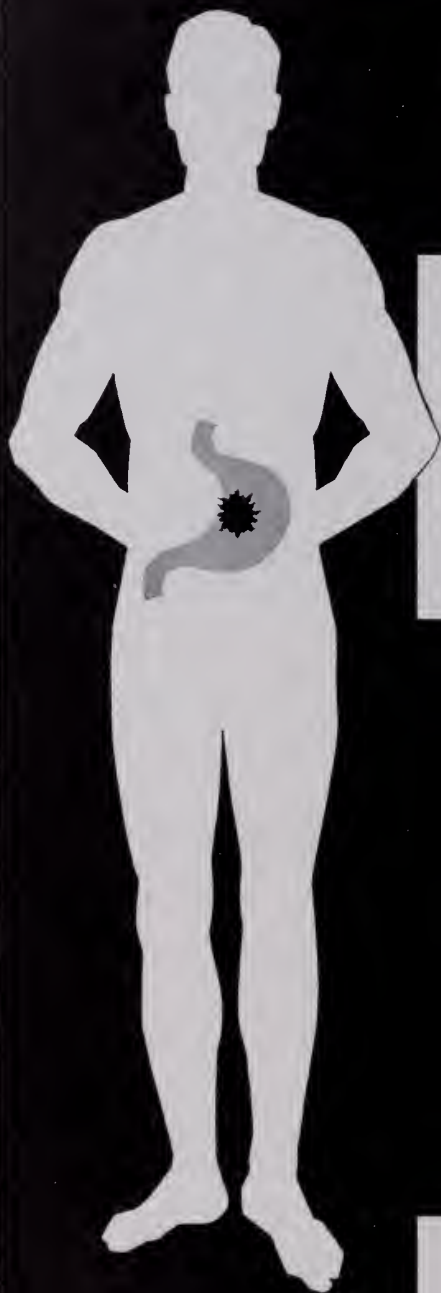
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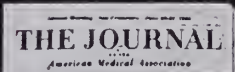
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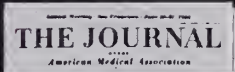
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		"marked"	moderate	slight	none
STUDY 1¹					
Skeletal muscle spasm secondary to acute trauma	33	26	6	1	—
STUDY 2²		"pronounced"			
Herniated disc	39	25	13	—	1
Ligamentous strains	8	4	4	—	—
Torticollis	3	3	—	—	—
Whiplash injury	3	2	1	—	—
Contusions, fractures, and muscle soreness due to accidents	5	3	2	—	—
STUDY 3⁵		"excellent"			
Herniated disc	8	6	2	—	—
Acute fibromyositis	8	8	—	—	—
Torticollis	1	—	—	1	—
STUDY 4⁶		"significant"			
Pyramidal tract and acute myalgic disorders	30	27	—	2	1
TOTALS	138	104	28	4	2
		(75.3%)	(20.3%)		



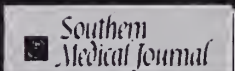
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1. Friedlander, H. S.: *The role of ataraxics in cardiology*. *Am. J. Card.* 1:395, March 1958.

2. Shapiro, S.: *Observations on the use of meprobamate in cardiovascular disorders*. *Angiology* 8:504, Dec. 1957.



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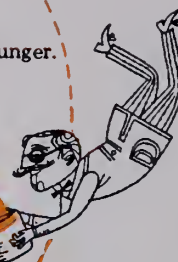
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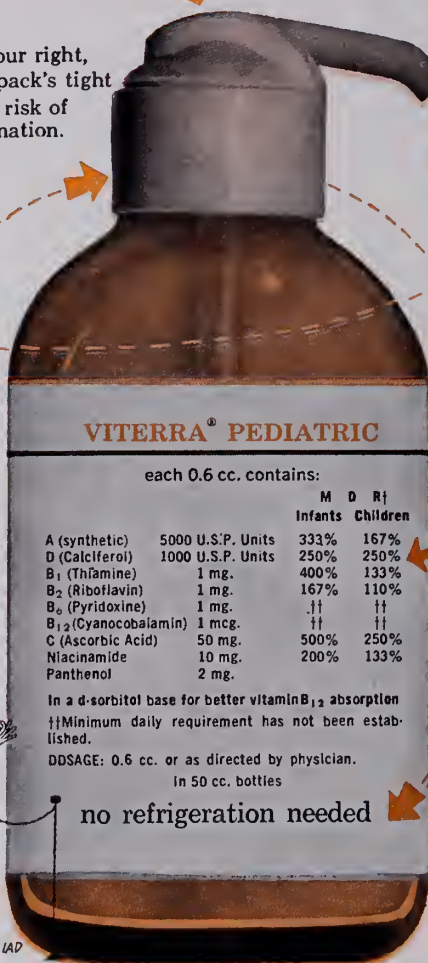
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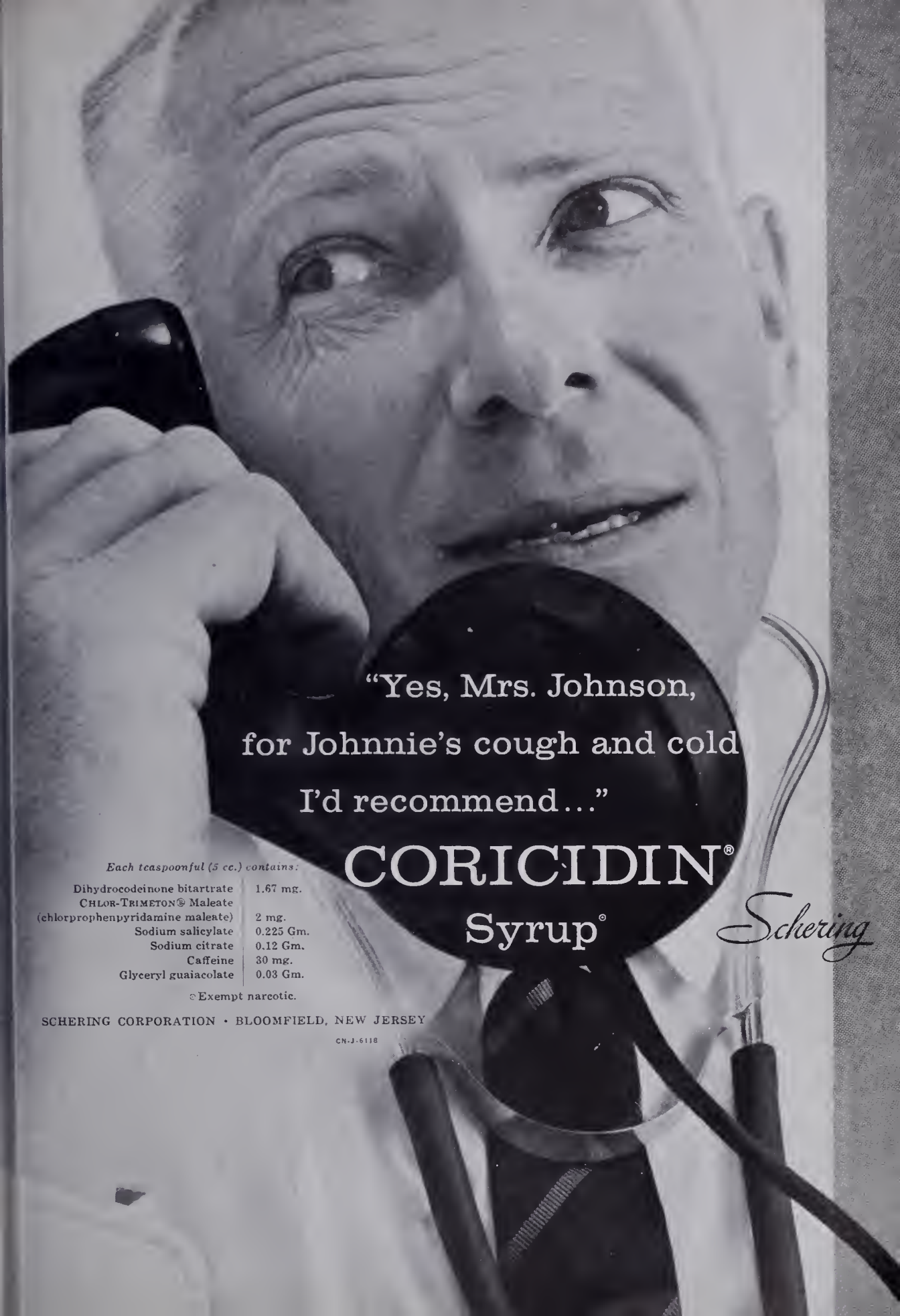
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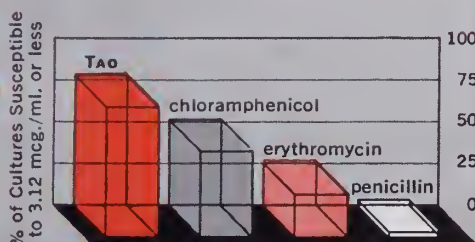
CLINICAL RESULTS

	adults	children	all Staph infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were Staph. aureus and Staph. albus. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, Hemophilus influenzae.

even
against
resistant
staph^{1,2}...

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.¹



well
tolerated ...

REACTIONS:

(a) adults

Total—9.2%
(20 out of 217)
Skin rash—1.4%
(3 out of 217)
Gastrointestinal—
7.8% (17 out of 217)

(b) children

Total—0.6%
(1 out of 167)
Skin rash—none
Gastrointestinal—
0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus ...

stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since Tao is therapeutically stable in gastric acid, it may be administered at any time, without regard to meals.
Supplied: Tao Capsules—250 mg. and 125 mg.; bottles of 60. Tao for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 476.

Investigator

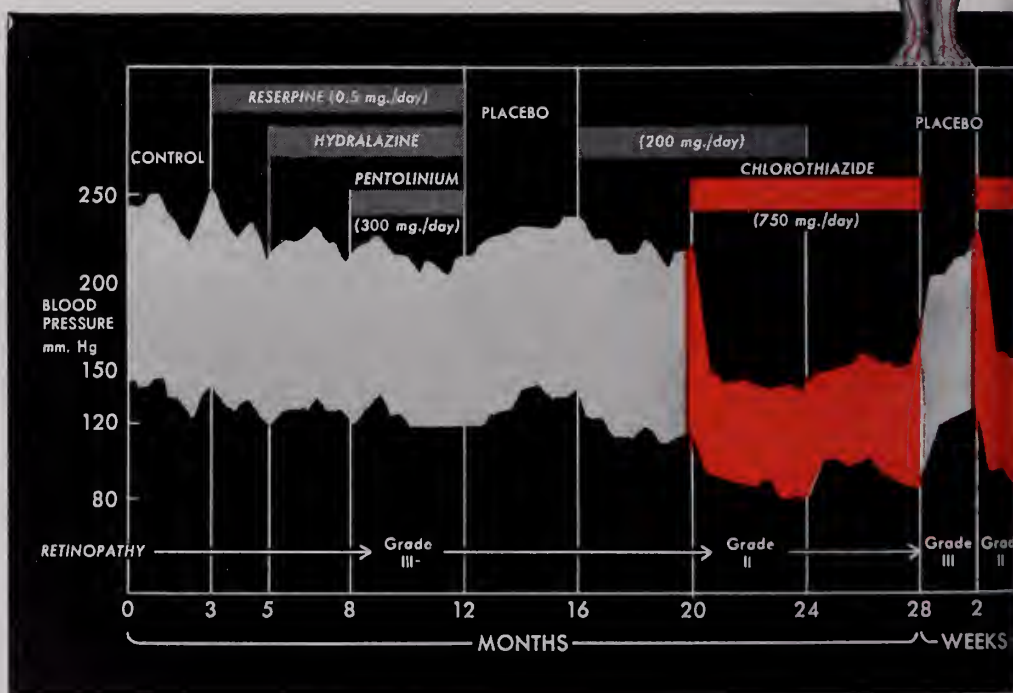
after investigator report

Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

"Chlorothiazide added to other antihypertensive drugs reduced the blood pressure in 19 of 23 hypertensive patients." "All of 11 hypertension subjects in whom splanchnicectomy had been performed had a striking blood pressure response to oral administration of chlorothiazide." "... it is not hypotensive in normotensive patients with congestive heart failure, in whom it is markedly diuretic; it is hypotensive in both compensated and decompensated hypertensive patients (in the former without congestive heart failure, it is not markedly diuretic, whereas in the latter in congestive heart failure, it is markedly diuretic). . . ."

Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

"Chlorothiazide (maintenance dose, 0.5 Gm. twice daily) added to the regimen of 73 ambulatory hypertensive patients who were receiving other antihypertensive drugs as well caused an additional reduction [16%] of blood pressure." "The advantages of chlorothiazide were (1) significant antihypertensive effect in a high percentage of patients, particularly when combined with other agents, (2) absence of significant side effects or toxicity in the dosages used, (3) absence of tolerance (at least thus far), and (4) effectiveness with simple 'rule of thumb' oral dosage schedules."



In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension,"

Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8: 1, September

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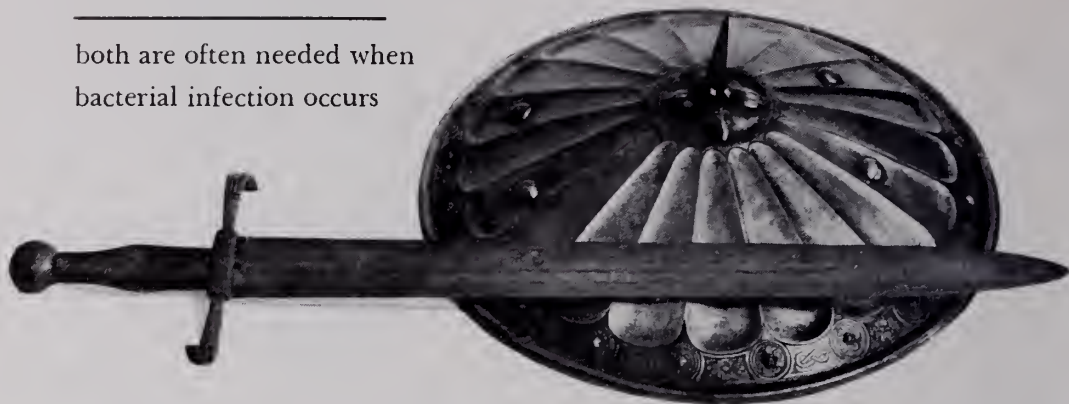
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The newborn may become a feeding problem if the formula is excessive or if he is awakened to be fed forcefully.

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WHOLE MILK FORMULAS

Age Months	Whole Milk Fluid Oz.	Water Oz.	Karo Syrup Tbsp.	Each Feeding Oz.	Number of Feedings in 24 Hours	Total Calories
Birth	10	10	2	3	6	320
1	12	13	3	4	6	532
2	15	13	3	4½	6	480
3	17	9	3	5	5	520
4	20	11	3½	6	5	610
5	23	11	4	6½	5	700
6	26	10	4	7	5	760
7	28	11	3	7½	5	740
8	30	11	2½	8	5	750
10	32	9	2	8	5	760
12	32	9	0	8	5	640

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Birth	6	12	2	3	6	380
1	8	16	3	4	6	532
2	9	14	3	4½	5	576
3	10	15	3½	5	5	650
4	12	18	4	6	5	768
5	12	21	4	6½	5	768
6	13	22	4	7	5	812
7	14	21	3	7	5	796
8	15	20	2	7	5	780
10	16	16	1	8	4	764
12	16	16	0	8	4	704

diagnosis: hypertension, moderate to severe

prescribed: **Rauprote***

(Rauwolfia Serpentina and Protoveratrine A & B Combined)

because immediate lowering of blood pressure is imperative

Rauwolfia Serpentina's gradual tranquilizing and prolonged hypotensive effect combines with faster-acting, more potent Protoveratrine for effective therapy with a minimum of risk. Each of the agents appears to potentiate the other's hypotensive activity and produce beneficial vasodilatation, without ganglionic or adrenergic blockade . . . without direct smooth muscle depression and without deranging those mechanisms which control blood distribution and which normally prevent postural hypotension.

Relief of symptoms is produced rapidly, blood pressure is lowered and tranquility ensues . . . with a minimum of side effects.

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ETIOLOGY OF ANEMIA; A PRACTICAL APPROACH TO THE SUBJECT

ANDREY GEORGIEFF, M.D.*

The term "anemia" refers to a reduction below normal in the number of red blood cells per cubic millimeter, a reduction in hemoglobin concentration or both.

Anemia, in the language of the clinician, means a reduction of the O_2 -carrying substance per unit volume of blood since this is the physiologic basis for the associated signs and symptoms, e.g., dyspnea, pallor, tachycardia, etc.

The word "anemia" is only a symptom, as is "fever" and "cough". No physician should accept a diagnosis of "anemia." However, many physicians will prescribe a "hematinic" on the finding of a low hemoglobin and look no further. Anemia, without the addition of a qualifying or descriptive term, is never a satisfactory diagnosis and never a valid basis for therapy. It must be emphasized, also, that the primary anemias are relatively rare conditions, whereas in an overwhelming majority of patients, anemia is an expression of systemic disease remote from the tissues of blood formation and destruction. Anemia should always be regarded as a danger signal demanding careful reevaluation of the patient's general condition. It is a medical blunder of the worst sort to fix one's attention upon the blood picture while a dangerous underlying disease goes unattended.

TERMINOLOGY

1. Mean corpuscular volume (or MCV or average erythrocyte volume) expresses

the volume of the average red cell. It is calculated very easily from the following formula: $MCV = \frac{\text{Hematocrit} \times 10}{\text{RBC in millions}}$ The normal MCV equals 87 (plus or minus 7) cu. microns. Red cells smaller than 80 cu. microns are called *microcytes*, and their occurrence as a prominent type is referred to as *microcytosis*. Red cells larger than 94 cu. microns are called *macrocytes*, and the condition of their presence is *macrocytosis*.

2. Mean corpuscular Hb. (or MCH or average Hb. content of the red blood cell) expresses the Hb content of the average red blood cell. It is calculated from the following formula: $MCH = \frac{\text{grams of Hb./100 cc. blood} \times 10}{\text{RBC in millions}}$ The normal is 29 with ranges from 27 to 32 micromicrograms.

This same information expressed in terms of the average normal is the color index (C.I.). The C.I. = $\frac{\text{Hb. (in \% of normal)}}{\text{RBC count (in \% of normal)}}$ The normal C.I. is 1.0 with a range of 0.9 to 1.1.

3. Mean corpuscular Hb. concentration (or MCHC) expresses the Hb. concentration per unit volume of red cell. It is calculated from the following formula: $MCHC = \frac{\text{grams Hb./100 cc. blood} \times 100}{\text{Hematocrit in per cent}}$ The MCHC normal is 35 (± 3)%.
4. An abnormal variation in the size of the red blood cells is referred to as *anisocytosis*.
5. Red cells of abnormal shape are called *poikilocytes* and their presence is spoken of as *poikilocytosis*.

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Formation of red blood cells: For the construction of red corpuscles are required amino acids, protein, iron, folic acid and vitamin B₁₂; riboflavin, nicotinic acid, pyridoxine and pantothenic acid are possibly concerned as well; certain minerals, such as copper and cobalt, are also concerned in erythropoiesis.

Under normal conditions, through increased production and transformation of yellow bone marrow to red, the bone marrow is capable of approximately a seven- or eight-fold increase in production capacity. *Destruction of red blood cells:* Wear and tear of the red blood cells result in a life span of the red corpuscles of approximately 120 days. In the average man, 9 billion red blood cells are destroyed per hour. The red blood cells are destroyed in the reticuloendothelial cells. Because there are a large number of red blood cells in the spleen, liver and bone marrow these organs are especially concerned in the process of red blood cells' destruction (and Hb. destruction). The hemoglobin liberated from the destroyed red blood cells undergoes breakdown itself. The end products of hemoglobin breakdown are iron, globin, and bilirubin.

The iron so liberated travels thenceforth as "plasma-iron" via the plasma iron-binding protein (siderophilin, a B₁-globulin) either to the bone marrow, where it is used in the synthesis of new hemoglobin, or to the storage depots where it is deposited as ferritin, a ferrous iron-protein complex, or as hemosiderin. The liberated globin is degraded and is returned to the body pool of amino acids.

Bilirubin is transported from the site of hemoglobin breakdown to the liver via the blood plasma, where it is carried with albumin as a bilirubin-albumin complex. On reaching the liver, hepatic cells separate bilirubin from albumin, then conjugate the bilirubin with glucuronic acid forming di- and monoglucuronides (di- and monoglucuronides are called together glucuronides). The glucuronides are excreted via the bile canaliculi and the bile ducts. Normally the bilirubin derived from the breakdown of hemoglobin is excreted by the liver. If the

amount of bilirubin produced exceeds the excretory capacity of the liver, as in hemolytic disease, or if the outflow of bile is interrupted or diminished as a result of hepatocellular injury or biliary obstruction, bilirubin accumulates in the serum and causes jaundice.

DIRECT AND INDIRECT BILIRUBIN REACTION

One of the characteristic properties of bilirubin is its capacity to couple with the diazo reagent (van den Bergh reaction). Under some conditions the addition of the diazo reagent to bilirubin results in a prompt reaction (direct van den Bergh reaction), but under others the reaction fails to occur or proceeds only slowly unless alcohol is added to the mixture (indirect van den Bergh).

Recent studies presented evidence that the bilirubin derived from hemoglobin and discharged into the serum (where the bilirubin is attached to albumin) gives indirect reaction. On passing through the liver, the indirect-reacting bilirubin is conjugated with glucuronic acid to form the di- and monoglucuronides of bilirubin, both of which give direct van den Bergh and are excreted in the bile. Normally only a trace of the glucuronides escapes into the circulation, but under conditions of hepatocellular injury and biliary tract obstruction appreciable amounts may appear in the serum and, to a lesser extent, in the urine. The unconjugated indirect-reacting bilirubin accumulates in the serum when the rate of hemolysis is increased and also to some extent under conditions of hepatocellular injury and obstructive jaundice. The unconjugated bilirubin and the conjugated (i.e., the glucuronides of bilirubin) combine with albumin when they enter the serum, but retain their characteristic van den Bergh reactions, indicating that the linkage of bilirubin with albumin is not a factor in determining its behavior to diazo reagent. The predominant bilirubin excreted in bile and bile-containing urine are the albumin-free glucuronides of bilirubin.

Although the chemical basis for the van den Bergh reaction appears to have been clarified its physiologic significance is still

uncertain. In particular, it is not known whether the appearance of the direct-reacting glucuronides in the serum necessarily implies that bilirubin has been regurgitated from the bile ducts. Alternative possibilities that remain to be excluded are that, under pathologic conditions, the glucuronides are discharged directly into the blood or lymph from the parenchymal cells, thus permitting the conversion of indirect to direct-reacting bilirubin. The solution of this problem will do much to clarify the pathogenesis of jaundice.

Normally the urine contains no bilirubin. However, appreciable amounts may be excreted when hepatocellular or obstructive jaundice is present. In contrast, bilirubin is rare in hemolytic jaundice unless it is complicated by liver damage. All but a small amount of the bilirubin that appears in the urine is in the form of albumin-free glucuronides, from which it may be inferred that the direct-reacting bilirubin-albumin complex is more readily dissociated in the kidney than the indirect-reacting and, hence, is more readily excreted.

HEMOLYTIC JAUNDICE

Hemolytic jaundice: Characteristically, most of the bilirubin that accumulates in the serum is of the indirect-reacting type. However, there may be a slight concomitant increase in the direct-reacting fraction, although, it rarely comprises more than 10% to 15% of the total bilirubin. The absence of bile in the urine is such a striking feature that hemolytic jaundice is known also as acholuric jaundice. Due to the increase in bilirubin production, the urobilinogen in the urine and feces increase. Tests of hepatocellular function usually show no abnormalities. Occasionally, infants with erythroblastosis fetalis exhibit features suggestive of obstructive jaundice, including high levels of direct-reacting bilirubin in the serum, bilirubinuria and clay-colored stools; probably due to the presence of hepatocellular damage. Similarly, the occasional occurrence of bilirubinuria and high levels of direct-reacting serum bilirubin in adults with severe hemolytic episodes, especially following transfusion reactions, probably is

attributable to complicating hepatocellular injury.

OBSTRUCTIVE JAUNDICE

Obstructive jaundice: Complete obstruction of the extrahepatic ducts leads to an increase in serum bilirubin (particularly of the direct-reacting type) the appearance of bile in the urine, the passage of clay-colored stools and the absence of urobilinogen from the urine and feces. Partial obstruction of the extrahepatic bile ducts also may give jaundice but only if the intrabiliary pressure is greatly increased, since the excretion of bilirubin does not diminish until the intractable pressure approaches the maximum secretory pressure of 250 mm. of bile.

The functional reserve of the liver is so great that occlusion of the intrahepatic bile ducts does not give rise of jaundice unless the drainage of bile from a large segment of the parenchyma is interrupted. Thus, either of the two major hepatic ducts or a large number of secondary radicles may be occluded without producing jaundice.

Regurgitation of bilirubin is thought to be the principal factor involved in the pathogenesis of obstructive jaundice. It is postulated that, as a result of increased intractable hydrostatic pressure, the walls of the canaliculi and the terminal bile ducts rupture or become more permeable, permitting the escape of direct-reacting bilirubin in the blood. The increase in the indirect-reacting fraction that almost invariably is present in obstructive jaundice is thought to be due to a decrease in the excretory capacity of the liver (resulting in the retention of indirect-reacting bilirubin).

HEPATOCELLULAR JAUNDICE

Hepatocellular jaundice: Due to a reduction of the excretory capacity of the liver, the indirect-reacting bilirubin cannot be excreted properly, hence, elevation of the indirect-reacting bilirubin (as in hemolytic disease). Usually, however, the serum also contains an excess of direct-reacting bilirubin; bilirubin is excreted in the urine and fecal urobilinogen is reduced. Urine urobil-

inogen may be increased, since the parenchyma no longer is capable of clearing the serum of urobilinogen entering from the intestinal tract. However, the excretion of bilirubin may be suppressed to such an extent that virtually no bilirubin reaches the intestine. Under these conditions the stools are clay-colored, production and reabsorption of urobilinogen in the intestine are diminished and the excretion of urobilinogen in urine falls to a low level. Thus, hepatocellular jaundice can seldom be differentiated from obstructive jaundice solely on the basis of changes in bilirubin metabolism.

Retention of bilirubin is an important factor in the pathogenesis of hepatocellular jaundice, particularly since the serum invariably contains an excess of indirect-reacting bilirubin. However, the concomitant accumulation of direct-reacting bilirubin in the serum suggests that regurgitation also plays a role.

Although the changes in bilirubin metabolism appear to be identical in hepatocellular and obstructive jaundice, certain other biochemical abnormalities serve to differentiate them. Thus, in hepatocellular jaundice the thymol turbidity and cephalin-cholesterol flocculation are increased, while in obstructive jaundice, the serum levels of alkaline phosphatase and cholesterol tend to rise sharply.

Hemoglobinuria, methemoglobinuria, and methemalbuminuria: Under pathologic conditions free hemoglobin may escape into the circulation. This occurs in severe hemolytic states when there is intravascular hemolysis, as in erythroblastosis fetalis, blackwater fever and Clostridia sepsis. Such hemoglobin is promptly bound by an -globulin and is carried to the reticuloendothelial system for breakdown there and conversion to bilirubin. Free hemoglobin is demonstrable in plasma only when the hemoglobin-binding capacity of the plasma is exceeded. In such instances the hemoglobin is converted to methemoglobin or to methemalbumin. It is the free, unbound hemoglobin which appears in the urine. Thus, hemoglobinuria, methemoglobinuria and methemalbuminuria develop.

CAUSES OF ANEMIA

Since normally, the number of red blood cells in the blood remains within narrow limits, it follows that the rate of cell destruction is equal to that of formation. It is evident, therefore, that anemia results either from an increase in the rate at which the cells are destroyed or lost, or from a decrease in the rate at which they are formed. On this basis, the anemias may be classified as:

- I. Anemias due to increased rate of cell loss
- II. Anemias due to increased rate of cell destruction, and
- III. Anemias due to decreased rate of cell formation.

TABLE I.

CAUSES OF ANEMIA (ETIOLOGIC CLASSIFICATION OF ANEMIA)

- I. *Anemias due to increased loss of red blood cells*
 - a. Acute loss of blood
 - b. Chronic loss of blood
- II. *Anemias due to increased destruction of red blood cells (also called "Hemolytic anemias")*
 - A. *Extracorporeal causes*
 1. Chemical agents and drugs:
 - a. Related to size of dose: benzene, acetanilid, lead, naphthalene, aniline, phenacetin, arsine, etc.
 - b. Depending on hypersensitivity of the patient's red blood cells: sulfonamides, quinine, pamaquine, primaquine, benzedrine, etc.
 2. Infectious agents:
 - a. Septicemia
 - b. Parasites: malaria (Oroya fever)
 3. Animal and vegetable poisons: snake venoms, fava bean, castor oil bean, mushrooms
 4. Burns
 5. Liver disease
 6. Uremia
 7. Hypersplenism
 8. Anemias due to immune body reaction:

- a. Virus infections: rubella, varicella, infectious mononucleosis, atypical pneumonia
- b. Isoagglutinins anti-A, anti-B (transfusion reaction)
- c. Isoagglutinins anti-Rh, anti-Hr, Kell, Duffy, etc. (erythroblastosis fetalis, intra-group transfusion reactions)
- d. Paroxysmal cold hemoglobinuria (cold hemolysins)
- e. Chronic infections, especially granulomatous infections, as tuberculosis, brucellosis, sarcoidosis, histoplasmosis, malaria
- f. Congestive splenomegaly, due to any condition producing elevation of pressure in the portal vein system
- g. Infiltrative splenomegaly, especially diseases like Gaucher's disease
- h. Collagen diseases, including polyarteritis nodosa, systemic lupus erythematosus, scleroderma and rheumatic arthritis
- i. Myelofibrosis, chronic leukemia, Hodgkin's disease, and lymphosarcoma
- j. Splenic neoplasms and cysts

B. Intracorpuseular defects

1. Hereditary spherocytosis (also called congenital hemolytic anemia or congenital hemolytic jaundice or chronic familial icterus, etc.)
2. Hereditary nonspherocytic hemolytic anemia
3. Hereditary leptocytosis (also called thalassemia, Cooley's anemia, target-cell anemia, Mediterranean anemia)
4. Sick-cell anemia
5. Other hereditary hemoglobinopathies (C, D, E, G, H, I, J, K)
6. Paroxysmal nocturnal hemoglobinuria (Marchiafava-Micheli syndrome)
7. Acquired hemolytic anemia

III. Anemias due to decreased rate of cell formation. These anemias may be

caused by inhibition of the rate of cell formation by the bone marrow or by replacement of the bone marrow by other tissues.

A. Inhibition (depression) of the rate of red blood cell formation (inhibition of bone marrow activity):

1. Chronic infections (anemia associated with chronic infections)
2. Chronic diseases
3. Chemical agents
4. Physical agents (physical injury of bone marrow): x-ray, radium, atomic explosion, other radioactivity
5. Uremia
6. Diffuse carcinomatosis

B. Mechanical interference with blood formation in the bone marrow (Mechanical displacement of the bone marrow; mechanical replacement of the bone marrow). Also called myelophthisic anemia

1. Leukemia
2. Hodgkin's disease
3. Myelofibrosis
4. Malignancy with metastases to the bone marrow
5. Multiple myeloma
6. Marble bone disease and various other congenital bone diseases are less common causes.

C. Decreased formation of red blood cells due to deficiency of substances necessary for their production

1. Deficiency of vitamin B₁₂
2. Deficiency of folic acid
3. Deficiency of iron
4. Deficiency of protein
5. Possible deficiency of vitamin C may cause anemia
6. Endocrine deficiency; myxedema, adrenal insufficiency and pituitary insufficiency
7. Liver disease

I. Anemias due to increased loss of red blood cells: The simplest mechanism by which anemia develops is blood loss. Anemia due to blood loss may be caused by acute (sudden, rapid) blood loss or chronic (insidious) blood loss.

- a. Anemia due to acute loss of blood (given by some authors under the name "acute posthemorrhagic" anemia) is caused by rapid loss of a large amount of blood. Massive hemorrhage may be due to trauma, peptic ulcer, spontaneous rupture of aneurysms, esophageal varices, hemorrhagic diathesis, etc.
- b. Chronic blood loss anemia differs from acute blood loss anemia in that it results from a slow depletion of blood beyond the replacement capacity of the bone marrow. Chronic loss of blood occurs most commonly from the pelvic organs in female and from the gastrointestinal tract in the male.

II. Anemias due to increased destruction of red blood cells (Hemolytic anemias): The term hemolytic anemias refers to anemias in which there is an increased rate of destruction in red blood cells. The bone marrow is able to increase its production seven to eight times; however, if the destruction is more than this, anemia will appear because the bone marrow is unable to compensate for any more destruction. This destruction of red blood cells may be due to extracorporeal causes (extracorporeal causes act to cause destruction of normally formed cells) or intracorporeal defects (defective formation of the red blood cells leads to their early destruction). These intracorporeal defects usually are hereditary, and often congenital.

Mechanism of hemolysis: Various processes condition or cause the destruction of red blood cells: phagocytosis, agglutinins and hemolysins, osmotic lysis, mechanical factors and sequestration with erythrocytosis.

A. Extracorporeal causes:

1. Various chemical agents and drugs can destroy the red blood cells, thus causing hemolytic anemia. Some of them cause anemia because they destroy the red blood cells (or only when in large doses), others cause anemia because of hyper-

sensitivity of the red blood cells to them.

2. Infectious agents:

- a. Septicemia, especially due to *Clostridium Welchii*, cholera, and less frequently streptococci, staphylococci, meningococci, can cause destruction of red blood cells.
- b. Parasites: malaria and antonella can destroy red blood cells. Malaria, as seen further below, can destroy red blood cells not only because of its presence in the red blood cell (mechanical effect) but also because of formation of immune bodies which cause hemolysis of the red blood cells.
3. Animal and vegetable poisons can cause hemolysis.
4. Burns can cause hemolysis.
5. Liver diseases can be accompanied by hemolysis of red blood cells.
6. Uremia can cause increased destruction of red blood cells.
7. Hypersplenism: The anemia accompanying certain disorders involving the spleen has been attributed to an exaggeration of the normal functional activities of the organ ("hypersplenism"), which include the removal of worn-out red blood cells.
8. Anemias due to immune body reaction: the classical representatives of these anemias are the erythroblastosis fetalis and transfusion reaction.
 - a. Virus infections: Rubella, varicella, infectious mononucleosis and atypical pneumonia may cause hemolysis of red blood cells due to formation of autoimmune bodies.
 - b. Isoagglutinins anti-A and anti-B: The processes that take place in transfusion reaction are well known.
 - c. Isoagglutinins anti-Rh, an-

- ti-Hr, Kell, Duffy, etc.: The processes that take place in erythroblastosis fetalis are well known.
- d. Paroxysmal cold hemoglobinuria: This rare disease is due to sudden intravascular hemolysis caused by the action of an autohemolysin contained in the patient's serum. This hemolysis has the peculiar property of being activated at low temperatures, but exhibits its destructive action on the red cells only after the blood is warmed again.
 - e. Chronic infections may cause the formation of autoimmune body reaction causing hemolysis of the red blood cells. This is isoimmunization.
 - f. Congestive splenomegaly may cause isoimmunization (autoimmunization).
 - g. Infiltrative splenomegaly may cause hemolysis of red blood cells due to formation of immune bodies.
 - h. Collagen diseases may cause hemolytic anemia because of formation of immune bodies.
 - i. Myelofibrosis, chronic leukemia, Hodgkin's disease, lymphosarcoma, can cause anemia by mechanical replacement of the bone marrow, but can also cause the formation of immune bodies to which the red blood cells are sensitive and so undergo hemolysis.
 - j. Splenic neoplasms and cysts may be the cause for formation of autoimmune bodies which cause destruction of red blood cells.
9. Acquired hemolytic anemia: The term "acquired hemolytic anemia" is used for a rather broad group of non-hereditary hemolytic anemias.

B. Intracorpuscular defects:

1. Hereditary spherocytosis: The disease is due to an inherited defect (transmitted as a Mendelian dominant by either parent) of the red blood cells, which tend to be more spheroid than normal and thus are more subject to destruction. (The spleen is the principal site for destruction of abnormal red blood cells.)
2. Hereditary nonspherocytic hemolytic anemia: This disorder resembles hereditary spherocytic anemia in the mode of inheritance; however, it differs in that the anemia is generally macrocytic, spherocytes are not found and osmotic fragility is normal.
3. Hereditary leptocytosis (Mediterranean anemia, Thalassemia) is an inherited disorder. The disorder is due to the inheritance of a factor which leads to defective hemoglobin synthesis, namely, the red blood cells in this disease contain a variable and often large proportion of fetal hemoglobin.
4. Sickle-cell trait and sickle-cell anemia are due to an inherited abnormality of the hemoglobin, namely, the red blood cells in sickle-cell trait and sickle-cell anemia contain an abnormal hemoglobin, termed hemoglobin S. The red blood cells show increased mechanical fragility and break up easily.
5. Other hereditary hemoglobinopathies (C, D, E, G, H, I, J, K): Now it is known that beside the normal hemoglobin found in normal red blood cells, sometimes, the bone marrow produces abnormal hemoglobin. There are several types of abnormal hemoglobins. The normal hemoglobin is termed hemoglobin A. The abnormal hemoglobins so far identified are: hemoglobin

S (this is the hemoglobin found in sickle-cell trait and sickle cell anemia), hemoglobin-C, hemoglobin-D, hemoglobin-E, hemoglobin-G, hemoglobin-H, hemoglobin-I, and hemoglobin-K. All the anemias due to abnormal hemoglobin are now called hemoglobinopathies and sickle-cell anemia is their prototype.

6. Paroxysmal nocturnal hemoglobinuria (Marchiafava-Micheli syndrome): The fault in this disorder resides in the red blood cells, which are unusually susceptible to acid hemolysis.

III. Anemias due to decreased rate of cell formation:

A. Inhibition (depression) of the rate of red blood cell formation can be caused by:

1. Chronic infections, such as tuberculosis (it was mentioned above that tuberculosis can cause anemia also by autoimmunization of red blood cells), chronic sepsis, osteomyelitis, salpingitis, sinusitis, subacute bacterial endocarditis, etc.: How the chronic infections cause anemia is not known; however, it has been observed that infection causes a profound disturbance of iron metabolism with decreased incorporation of iron into hemoglobin. So it seems likely that some fault in the construction of red blood cells is an important underlying mechanism.
2. Chronic diseases: Various chronic diseases, such as chronic nephritis and rheumatoid arthritis can cause anemia by depressing the bone marrow. The pathogenesis of anemia associated with chronic renal disease is an enigma; in certain instances there is increased hemolysis, in others, there is decreased blood formation. Unlike the

anemia associated with infection, anemia of renal insufficiency does not have hypoferrremia as a constant feature.

3. Certain chemical agents depress the formation of red blood cells by the bone marrow. Individual sensitivity and some obscure mechanism leading to bone marrow aplasia seem to be involved in the anemia which follows ingestion of certain drugs and chemicals.
 4. Physical agents: The anemia which follows exposure to irradiation is probably related to the inhibition of nucleic acid synthesis. Here too, however, there is some evidence that hemolysis also is a factor.
 5. Uremia.
 6. Diffuse carcinomatosis may cause anemia due to toxic metabolic state.
- #### B. Mechanical interference with blood formation in the bone marrow (Mechanical displacement of the bone marrow; mechanical replacement of the bone marrow):
- This type of anemia is called myelophthisic anemia. The replacement of the bone marrow can be caused by leukemia, Hodgkin's disease, myelofibrosis, malignancy with metastases to the bone marrow, multiple myeloma; marble bone disease and various other congenital bone diseases are less common causes. However, now there is evidence that the anemia is due not only to the bone marrow replacement but also to the fact that the "life span" of the red blood cells is reduced and occasionally frank hemolytic anemia develops.
- #### C. Decreased formation of red blood cells due to deficiency of substances necessary for their production:
- Deficiency of the following substances may cause anemia: vitamin B₁₂, folic acid, iron, protein. Anemia also may be present in myxedema, anterior pituitary insufficiency and adrenal cortex insufficiency. The

pathogenesis of the anemia observed in myxedema is obscure; this anemia disappears gradually as desiccated thyroid is given. The pathogenesis of anemia with adrenal and pituitary insufficiency is not understood. Anemia may be present in liver diseases.

CLINICAL FEATURES OF ANEMIA

Clinical features of anemia: Hemoglobin is the vehicle for supply of oxygen to the tissues. Approximately one half of the O₂-carrying substance (hemoglobin) can be lost before recognizable signs and symptoms appear. Nevertheless, it must be remembered that the effects of anemia are felt in every organ and tissue. The development of symptoms in association with anemia depends on: (1) the rapidity with which anemia has developed, (2) the degree of reduction in the O₂-carrying power of the blood, as well as the extent of changes in total blood volume and (3) the causative disorder.

If anemia has developed so rapidly that there has been little or no time for physiologic adjustment, the symptoms are likely to be prominent and to appear comparatively early. On the other hand, if the anemia has been insidious in onset, the tissues of the body adjust themselves to the gradually diminishing supply of O₂ so that the red cell count may be as low as two million cells per cubic millimeter, or the hemoglobin as low as 6 gm. per ml. may develop without the appearance of any symptoms. Reaction to a sudden loss of blood is referable more to reduced blood volume than to the actual removal of red blood cells and hemoglobin. Or, in other words, when anemia is caused by sudden loss of blood, the most prominent symptoms are those resulting from the reduction of total blood volume, and they are relieved in large measure when the loss of blood is replaced, by absorption of fluid from the tissues or by the artificial introduction of fluid or red blood cells. The chief symptoms arising with rapid destruction of blood are those associated with the disposal of the products of blood destruction (hemolysis), namely, hemoglobinuria and jaundice.

Patients with anemia present many non-specific clinical signs and symptoms. They are pale, complain of weakness, malaise, easy fatigability, headache, dyspnea on exertion, vertigo, palpitation, faintness, increased sensitivity to cold, tinnitus or roaring in the ears, black spots before the eyes, muscular weakness, easy irritability. Drowsiness develops in severe anemia. Loss of appetite is not uncommon. Nausea, flatulence, abdominal discomfort, vomiting or abnormal appetite may also be found. In pernicious anemia, and less often, in chronic hypochromic anemia, glossitis and atrophy of the tongue and papillae are common. Necrotic lesions in the mouth and pharynx may develop in patients with aplastic anemia, in granulocytopenia and in acute leukemia. Menstrual disturbances, most often amenorrhea, in the female, and loss of libido in the male are frequently encountered in severe anemia. In other instances, excessive menstrual bleeding accompanies anemia. Slight proteinuria may be present. If the quantity of superficial fat is the criterion, the nutritional state may appear to be moderately or well preserved, in spite of the presence of anemia. Fever of mild degree is common when the anemia is severe. Anemia is one of the most common causes of palpitation, shortness of breath and pallor.

Paresthesias are common in pernicious anemia and they may be accompanied by signs and symptoms of extensive peripheral nerve and spinal cord degeneration. They also may be encountered in chronic hypochromic anemia, but in the latter, spinal cord degeneration is very rare. The arterial pulsation and the pulse pressure are increased. The heart may be dilated (due to increased venous return to the heart.) The circulation time is shortened. When this increase in inflow load exceeds the reserve power of the myocardium, the clinical picture of cardiac failure ensues. Edema is a frequent accompaniment of anemia. The cause of edema are hypoproteinemia and diminished tissue O₂ tension leading to increased capillary permeability. Severe anemia may produce a systolic murmur, which usually is most marked at the pulmonic area but may be heard elsewhere over the

precordium. Over the vessels of the neck, a curious humming sound, the bruit de diable, may be heard. Enlargement of the spleen is frequent in anemias of long-standing. When there is iron deficiency the nails lose their luster, become brittle, break easily and may become concave instead of convex (koilonychia).

Cyanosis is not common in severe anemia because there is insufficient circulatory hemoglobin to produce the dusky blue discoloration of reduced hemoglobin. Anemia may cause fatty degenerative changes in the myocardium and if these changes are severe cardiac failure may develop. Occasionally, the myocardial anoxia (due to diminished oxygen-carrying substance (hemoglobin) manifests itself by pain on exertion (angina pectoris), particularly when pre-existing vascular disease has already rendered the myocardium partially ischemic.

In addition to the above general signs and symptoms, there are many clinical findings characteristic of the etiologic type of anemia. The most characteristic features of the anemias become evident only with laboratory studies of the peripheral blood.

Detection of anemia: The presence or absence of anemia is determined by the examination of the blood, but its existence may, nevertheless, be suspected with fair accuracy on the basis of the above symptoms and signs. The skin itself is an unreliable index of anemia; the mucous membranes, the nailbeds and the palms of the hands are more dependable. The color of the conjunctiva may be very helpful. The gums are not so useful as would be expected. Unless the hand has been held in an awkward position or has been exposed to cold or excessive heat, the nailbeds and the palms of the hands will reveal anemia if it is marked.

STUDY OF A PATIENT WITH ANEMIA

- A. The history must give attention to the following details:
 1. The possible occurrence of blood loss
 2. The diet, particularly with reference to the intake of foods

rich in protein, vitamins and minerals

3. The presence or absence of symptoms suggesting an underlying disease, as chronic renal disease, chronic infection or malignancy
 4. In the case of a child or adolescent, the rate of growth
 5. In the case of a woman, the nature of the menstrual periods (amount of flow, duration and frequency)
 6. The possibility of exposure to poisons that may cause anemia
 7. The family history: A history of splenectomy in some member of the family may be a valuable clue to the diagnosis. If a familial or hereditary disorder is suspected other members of the family should be examined if possible, since the family may be unaware of the existence of any detectable abnormality.
- B. The physical examination should be complete and the examiner alert to look for the signs of anemia as given above under "Clinical features of anemia."
- C. The laboratory examination: The following procedures are used in investigation of anemias:
1. If anemia is suspected start the investigation with ordering hematocrit. If the hematocrit is reduced, order hemoglobin and red blood cell count.

(Note: The presence or absence of anemia can be determined from the red blood cell chamber count, the hemoglobin, or the hematocrit. The hematocrit is much more accurate, the next in accuracy is hemoglobin and the least accurate is the red blood cell count.)
 2. From the hematocrit, hemoglobin and the red blood cell chamber counting, ask the laboratory to calculate (or calculate yourself from the formulae given under "Terminology") the

MCV, the MCH, the MCHC and C.I. These findings should be checked by examination of smear.

3. Ask for a blood smear made directly from the finger. Blood smear should be examined in all instances of suspected anemia because it yields valuable information. Namely ask the laboratory for the following: (a) Morphologic description of the red blood cells in stained smear. (The morphology of the cells may serve as a valuable clue to the nature of the anemia.) (b) In the smear may be found evidence of exaggerated erythropoiesis, such as polychromatophilic red cells, macrocytes and even nucleated red cells. (c) Evidence of disturbed red cell formation, such as poikilocytes, Cabot rings and Howell-Jolly bodies may also be found. (d) The smear may reveal an unsuspected protozoal parasite (e.g., that of malaria).
4. WBC, platelet count and differential count: The hematopoietic system functions as a physiologic unit, consequently, when red cell formation is stimulated it is found as a rule there is, in addition, increased leukopoiesis and an increase in the quantity of platelets. Thus, following acute blood loss, there may be not only reticulocytosis but also moderate or even marked leukocytosis accompanied by an increase in the younger forms of leukocytes ("shift to the left").
5. Reticulocyte count
6. Evidences of increased red cell destruction must also be sought out. The clue to this is the plasma bilirubin level. The van den Bergh reaction reveals this to be of the "indirect" type, and examination of the urine in such cases reveals an increased quantity of urobilinogen. It is useful to measure the quantity of urobilinogen excreted in the stool as well. So order icterus index, plasma bilirubin, van den Bergh, urine urobilinogen and stool urobilinogen.
7. Coagulation time
8. Bleeding time
9. Clot reaction time
10. Capillary resistance (Rumpel-Leede sign, tourniquet test)
11. Ask for variation in size (anisocytosis), shape (poikilocytosis), hemoglobin content and staying quality of red blood cells.
12. If there is reason (as for example, elevated plasma bilirubin) to believe that one is dealing with a hemolytic anemia, ask for the following special procedure which will aid in the differential diagnosis: (a) Osmotic fragility of the red blood cells. (b) Coombs' test. (c) Test for warm, cold and acid hemolysins. (d) Investigate the presence of abnormal hemoglobin (by lab. tests). (e) Mechanical fragility.
13. If the cause of the anemia is not found from the history, plasma iron concentration should be ordered. The plasma concentration is reduced below the normal in cases of iron deficiency, in association with the anemia of chronic infection and in various types of anemia in which blood regeneration is active.
14. When the patient has been studied thoroughly in the manner indicated above, the number of instances in which examination of the bone marrow will be required is small.
15. In the study of bone marrow (as obtained by sternal, iliac crest, spinous process or rib puncture) ask the laboratory for the following: (a) Is M:E ratio (myeloid:erythroid) increased? (b) Is there normoblastic hyperplasia?

(c) Is there an increase of non-myeloid cells? (d) Is there megaloblastic hyperplasia?

INTERPRETATION OF RESULTS

After obtaining an answer to questions (a), (b), (c), and (d) consult the table below: (a) M:E ratio is increased in: myeloid forms of leukemia, the majority of infections, leukemoid reaction, decrease in nucleated red cells. (b) Normoblastic hyperplasia is present in: hemorrhagic anemias, iron-deficiency anemia, hemolytic anemia, thalassemia, cirrhosis of the liver, polycythemia vera, plumbism, anemia of chronic renal disease. (c) Non-myeloid cells are increased in: other forms of leukemia, multiple myeloma, metastases from carcinoma to the bone marrow, Gaucher's disease, Niemann-Pick disease, aplastic anemia (relative increase only), infectious mononucleosis. (d) Megaloblastic hyperplasia is present in: pernicious anemia, sprue, idiopathic steatorrhea, resection of small intestine (certain cases), tropical macrocytic anemia, nontropical nutritional macrocytic anemia, macrocytic anemia with diphyllobothrium infestation, megaloblastic anemia of infancy, megaloblastic anemia of pregnancy.

Although in all cases of anemia the examination of bone marrow is of interest, bone marrow examination is an essential aid in diagnosis only in a limited number of conditions. These include aleukemic leukemia, multiple myeloma, Gaucher's disease, Niemann-Pick disease, and unusual cases of macrocytic anemia. In "aleukemic" leukemia, the bone marrow reveals numerous immature forms, thus dispelling the doubt raised by their absence or scarcity in the blood. In addition to these disorders, it may be added that, in cases of parasitic diseases such as kala-azar, the causative organisms may be discovered in the bone marrow, when they cannot be found in any other way. Again, the cells of metastatic lesions may be demonstrated by bone marrow examination. In aplastic anemia, it is the negative character of the marrow material which may be helpful.

- I. Anemia due to excessive blood loss:
The anemia caused by blood loss may

be due to sudden loss of large amount of blood or chronic loss of blood. It is convenient to consider acute and chronic posthemorrhagic anemias separately because their manifestations and, in certain respects, their treatment differ so greatly. It should be realized, however, that these two syndromes represent two extremes and that, in practice, variations will be encountered which represent all stages between these extremes.

A. Anemia due to acute loss of blood (also called "acute posthemorrhagic anemia"): The immediate effects of hemorrhage depend upon the rapidity and amount of blood loss. Sudden loss of $\frac{1}{3}$ of the blood volume may prove fatal but as much as $\frac{2}{3}$ may be lost over a 24-hour period without fatal outcome. The rapid loss of blood leads to reduction of blood volume and the clinical manifestations are due mainly to low blood volume. If the blood loss is great "acute posthemorrhagic shock" develops. Generally speaking, symptoms are likely to appear sooner and are more pronounced in relation to the amount of blood lost when the bleeding is external than when it is not recognized by the patient. The symptoms of acute blood loss are pallor, faintness, restlessness, palpitation, sweating, weak, rapid pulse, rapid shallow respiration, dizziness, thirst and falling blood pressure. If the patient survives the hemorrhage, the build-up of the plasma volume leads to hemodilution that reaches full extent within 72 hours.

Laboratory findings:

1. Red blood cell count, hemoglobin, and hematocrit: Examination of the peripheral blood during and immediately after hemorrhage shows no numerical or morphological changes in the cells since red blood cells and plasma are lost at the same time: the red blood cell count, hemoglobin and hematocrit are

deceptively high. Within a few hours, fluid enters the circulation from the tissues resulting in hemodilution and a drop in the red cell count and the hemoglobin proportional to the severity of the bleeding. The resulting anemia is normocytic and normochromic, however, several days later, when the bone marrow commences to produce rapidly a large number of red blood cells to replace the lost, immature red corpuscles are liberated from the bone marrow, and because these immature red corpuscles are larger than the normal mature red cells, the anemia may become macrocytic normochromic.

2. Leukocytosis: Polymorphonuclear leukocytosis as high as 35,000 may take place within the first few hours after severe hemorrhage, with "shift to the left." Polymorphonuclear leukocytosis with shift to the left is the first discernible blood change following acute hemorrhage.
3. An increase in the number of platelets often takes place.
4. Reticulocytosis appears several days after the hemorrhage. Reticulocytes may begin to appear within 48 hours following a brisk hemorrhage and may continue to increase for several days. A persistent reticulocytosis forming a plateau-like curve, suggests that bleeding is continuing for cessation of hemorrhage is marked by quick regression of the signs of stimulated hematopoiesis. (Note: Because the bone marrow acts as a hemopoietic unit, when stimulated to produce red blood cells, the bone marrow also produces WBC and platelets.) So the signs of stimulated hematopoiesis are: (a) Rising blood cells; (b) Appearance of imma-

ture red blood cells; (c) Leukocytosis; (d) Shift to the left; (e) Reticulocytosis; (f) Appearance of immature granulocytes; (g) Polychromatophilic cells appear several days after the acute hemorrhage. (h) As we have stated, the anemia in acute hemorrhage is normocytic normochromic and several days after the hemorrhage, it may become macrocytic normochromic. If the iron stores of the body are good and the blood loss has not been extreme, there is no hypochromic, or it is slight. But when the drain on the iron is greater than can be readily replenished, the anemia may become hypochromic. (i) When the acute hemorrhage is internal, destruction of the blood and absorption of the products may lead to an increased excretion of urobilinogen in the urine and stools and, rarely, even slight bilirubinemia may be found. (j) Bowel hemorrhage is often associated with an increase in the blood urea nitrogen level and low grade fever 48 hours later.

Following loss of blood from the body, regeneration of blood occurs, and in an otherwise normal individual, the blood values are brought to normal within a short period of time depending upon the amount of blood lost.

- B. Chronic blood loss anemia differs from the acute blood loss anemia in that it results from a slow depletion of blood beyond the replacement capacity of the bone marrow. In this condition, the critical factor is iron depletion. The chronic blood loss drains the iron reserves and with this deficiency the marrow cannot form red cells. The anemia is, therefore, strictly an iron deficiency anemia. Chronic blood loss anemia is seen commonly in such conditions as gastric or duodenal ulcer, bleeding hemorrhoids, ulcer-

ating neoplasm and, less commonly, in certain blood disorders in which hemorrhages occur.

When blood is lost in small amounts over a long period of time it appears that the bone marrow is not stimulated to replace the cells as it would be if the blood loss was more acute or of larger quantity. So the peripheral blood pattern of chronic blood loss combines the features of iron deficiency anemia with the signs of bone marrow suppression, or at least subnormal hematopoietic function. When massive hemorrhage complicates the course of chronic blood loss the picture becomes one of iron deficiency plus active red cell formation. The laboratory pattern described below is the more common one of iron deficiency without release of new red blood cells into the blood:

1. Anemia: In the majority of cases, the red cell count is only moderately diminished. The erythrocytic morphology is microcytic and hypochromic; the volume index and color index are below 0.9.
2. Altered red cell morphology: In the stained film, the red cells are small and poorly filled with hemoglobin. Irregular, pear-shaped, or tailed poikilocytes are common. Polychromatophilic cells and nucleated forms are not seen in the smear.
3. Leukopenia: As a rule, there is low WBC count, and there is a relative lymphocytosis.
4. Low reticulocyte count, unless there has been a recent acute bleeding episode.
5. The icterus index and the bilirubin are low.

II. Anemia due to increased destruction of red blood cells, also called "hemolytic anemias." Diagnosis:

1. The symptoms depend upon the rapidity, extent of hemolysis and its duration.
2. Symptoms may be entirely absent or there may be few manifestations.
3. The patient may complain from symptoms of anemia in general (see above "Clinical features of anemia").
4. The patient may presently, or may have had in the past, symptoms of hemolytic crisis. This is characterized by the following: a severe, shaking chill, followed by high fever, malaise, headache and pain in the back, abdomen or limbs; the urine becomes very dark, jaundice develops rapidly; as anemia ensues, weakness, palpitation, dyspnea, tachycardia, hemic murmurs, faintness and other manifestations of anemia appear.
5. In chronic hemolytic anemia, splenomegaly is common and enlargement of the liver may be present.
6. All grades, from acute fulminating disorders of several days' duration to extremely benign conditions of many years' standing, may be encountered.
7. A chronic process may be interrupted by acute exacerbations.
8. Laboratory findings:
 - a. Red blood cell count, hemoglobin and hematocrit: The anemia may be mild or severe, depending upon the intensity and duration of the hemolytic process.
 - b. The anemia is usually normocytic, but may be macrocytic.
 - c. Following a hemolytic crisis, there will be rapid regeneration of red blood cells; look for signs of increased red cell production: reticulocytosis, presence of immature red blood cells, leukocytosis, a shift to the left, myelocytes, even rare myeloblasts seen, platelets may increase in number, polychromatophilia, Howell-Jolly bodies, anisocytosis, poikilocytosis; in certain cases, however, there may be leukopenia and thrombocyto-

- penia; the bone marrow is hyperplastic.
- d. Look for bilirubinemia and elevated icterus index.
 - e. When the degree and rate of blood destruction are very great, hemoglobin is liberated into the plasma and, if the hemoglobin-binding capacity of the plasma is exceeded, free hemoglobin is excreted by the kidneys and hemoglobinuria results. However, the finding of red urine must not be assumed to be necessarily indicative of hemoglobinuria. The color may be produced also by intact red blood cells, porphyrin or myoglobin. Microscopic and spectroscopic examination of the urine will reveal the cause of the abnormal color.
 - f. More often, blood destruction is less rapid. In such cases hemoglobinemia and hemoglobinuria are not found.
 - g. The icterus index, serum bilirubin and urobilinogen excretion in the urine and feces are elevated.
 - h. The van den Bergh is indirect but some increase in direct or "one-minute" bilirubin (bilirubin glucuronide) may also occur.
 - i. Look for morphologic red blood cell defects: spherocytes, target cells or sickle-cells.
 - j. Altered red blood cell fragility (always present in hereditary types). The test is generally positive in hereditary spherocytosis and negative in acquired forms with few exceptions.
 - k. Detection and identification of abnormal hemoglobin (which give rise to hereditary traits and anemias): S, C, D, E, F, G, H, I, J, K.
 - l. Increased mechanical fragility has been observed in congenital hemolytic jaundice, in sickle-

cell anemia, and in the presence of cold agglutinins.

- m. Perform test for cold hemolysis.
- n. Perform test for warm hemolysis.
- o. Perform test for increased acid hemolysis.
- p. The Donath-Landsteiner test should be carried out.
- q. Ask for "direct" Coombs' test and "indirect" Coombs' test. See Table II.

TABLE II
COOMBS' TEST

<u>Hemolytic disorder</u>	<u>Indirect</u>	<u>Direct with Rh+</u>	<u>Indirect with Rh—</u>
1. Acquired hemolytic anemia:			
a. With circulating antibodies	+	+	+
b. Without circulating antibodies	+	—	—
c. Due to Rh antibodies in Rh+ infant (Erythroblastosis fetalis)	+	+	—
d. Due to physical and chemical agents	±	—	—
2. Congenital hemolytic anemia (Hereditary spherocytosis)	—	—	—
3. Paroxysmal nocturnal hemoglobinuria	—	—	—
4. Paroxysmal cold hemoglobinuria (type associated with syphilis)	+	—	—

A. Extracorpuscular causes: As far as the first seven causes of hemolytic anemia as listed in Table I (Causes of Anemia) there is nothing more to be added about their symptomatology, except to say that in the presence of signs and symptoms of hemolytic anemia one should look for their presence.

- 8. Anemias due to immune body reaction:
 - a. Look for the presence of the virus diseases listed under 8a
 - b. History of blood transfusion—Signs and symptoms of hemolytic anemia
 - c. Isoagglutinins anti-Rh: Rh— mother, Rh+ father, Rh+ (Cont. on page 331)

COMMON ERRORS IN THE DIAGNOSIS OF THE ACUTE ABDOMEN*

G. S. SERINO, M.D.**

CASE REPORTS AND STAFF DISCUSSION***

We are cognizant that not only do common errors exist, but that those errors are common to us all.¹ To some degree these errors will continue to exist. However, if one can determine the causes for such errors, the possibility of reducing the incidence becomes more promising. With this thought in mind I have undertaken the task of reviewing a great number of acute abdominal cases which were treated during the past 25 years.

As a result of this survey it is evident that the scientific method is the only one which will insure the making of a proper diagnosis. It also is clear that handling of evidence needs a sense of expertness. Disastrous conclusions frequently are made by the examiner who forsakes the scientific method and, as a substitute, depends on his clinical experience.

What then is the proper scientific method? Making a diagnosis embraces two items: taking evidence and interpreting that evidence. There are three sources of evidence: the history, the physical examination and the laboratory data. All three are important.²

Sources of error may be diminished by taking evidence properly. It is necessary that the examiner know the course and natural history of the disease under scrutiny. In addition, he must know various diseases which may give rise to a train of symptoms or a group of findings similar to

the entity which is believed to be present.³ Frequently the case under consideration does not fit any of the classic descriptions of typical disease entities. In such cases knowledgeable weighing and sifting of evidence is important. It may be impossible to clearly identify the exact nature of certain diseases entities without recourse to operation. This is particularly true when the examiner encounters a rare situation such as a ruptured duodenal diverticulum.⁵ Difficulties in diagnosis also may arise in a case where a perforated duodenal ulcer with massive bleeding is encountered in the newborn.⁶

To be satisfied with the diagnosis of "Acute Abdomen" robs the endeavor of much of its interest.⁷ These "academic errors" are a source of irritation to the mental state of the surgeon alone, but errors which may affect the patient's chance of recovery are of vital concern to both patient and doctor.⁸ Fortunately, serious errors are infrequent in modern practice.

Significant reasons for errors in diagnosis of the acute abdomen as revealed by this survey are briefly as follows:

1. Failure by the examiner to obtain a clear and concise history.
2. Failure to evaluate the total individual.
3. Failure in securing necessary and available laboratory data.
4. Failure to recognize the "time factor"—early, advancing and late in the various disease entities.
5. Failure by the surgeon to correlate the facts with established laws of physiology, embryology, anatomy and pathology.

*Read at regular scientific meeting of Staff of St. Francis Hospital on May 27, 1958.

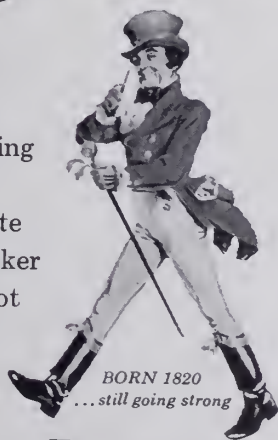
**Chief in Department of Surgery, St. Francis Hospital.

***Participating: James M. Hoffer, M.D., Assistant in Dept. of Medicine; Harold A. Tarrant, M.D., Associate in Metabolism; George J. Boines, M.D., Director, Dept. of Medicine; Lawrence J. Jones, M.D., Director, Dept. of Surgery; David J. Reinhardt, III, M.D., Assistant, Dept. of Medicine; Joseph A. Arminio, M.D., Assistant, Dept. of Surgery.

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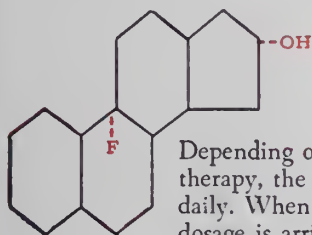
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6. Failure to re-evaluate the patient.
7. Failure to repeat laboratory studies.
8. Failure to evaluate the patient properly due to the masking effects of laxatives, opiates and antibiotics.
9. Failure to realize that the waiting attitude by the surgeon is fraught with disaster.

Many who are taken with abdominal pain in the daytime endure till evening before they feel compelled to send for the doctor. By this time the patient and his family are both showing signs of emotional instability. The physician, weary from the day's work, is physically and mentally below his best. To make important decisions under these conditions is difficult. The temptation often is strong to temporize and "see how things are in the morning." This waiting attitude is understandable, but rarely excusable.

In retrospect, if the above findings were carefully applied in the following cases these errors might have been avoided.

CASE REPORTS

A 28 year old female entered the hospital with the admitting diagnosis of an acute abdomen. The history showed that she had awakened suddenly at 6 a.m. with sharp, steady pain over the epigastrium which shifted during the next few hours to the right lower quadrant. The pain was followed by severe vomiting. She was examined by her local physician who administered an opiate and advised that she be admitted to the hospital.

Past history was essentially non-contributory.

Physical examination revealed temperature, 99.8 degrees; pulse, 96; respiration, 24. The remainder of the physical examination was essentially negative except for the abdomen where tenderness was found throughout, being more marked in the lower right quadrant. There was rebound tenderness in this area with the suggestion of a mass. Muscle rigidity was slight in the epigastric area and more intense in the right lower quadrant. The abdomen was not distended and the peristalsis was hypoactive.

Laboratory test showed hemoglobin, 11 gm.; RBC, 3.3 million cells; WBC, 11,500 with 84 per cent polymorphonuclear leukocytes. Analysis of urine was negative. Roentgenograms of the abdomen and chest were not considered necessary.

These findings suggested the preoperative diagnosis of acute appendicitis. Based on these findings it was apparent that peritonitis of the localized variety was present. These findings also suggested that leakage from this abscess in a cephalic direction was taking place.

Upon opening the abdominal cavity, exploration revealed the presence of undigested food, gastric contents and air. This indeed was an error. This error occurred 25 years ago as I was finishing my internship. My chief, who was noncommittal prior to the surgery, quickly extended his incision upward on finding a normal appendix. The ruptured and leaking duodenal perforation was quickly repaired. The patient made an excellent recovery.

The examiner in this case did not obtain a good history. He was misled from this poor history into believing that the appendix was the source of difficulty. In a perforated duodenal ulcer the most valuable data for proper diagnosis may be obtained from the history. This catastrophe, which occurs with dramatic suddenness, causes a great and immediate disability. The patient lies prostrate. The face shows signs of pain and anxiety. The flooding of the peritoneal cavity with gastric contents produces excruciating pain and board-like contractions of the abdominal muscles. The signs and symptoms produced by the perforation vary according to the time which has elapsed since the perforation occurred. Physical examination frequently leaves no tell-tale signs. When a patient suspected of having a perforation of a duodenal ulcer is examined several hours after the occurrence of the disaster, board-like rigidity may be absent altogether. Occasionally, as in this case, even as great a rigidity may be noted in the right lower quadrant as over the perforation. This phenomenon is explained on the basis that after the elapse of several hours more fluid accumulates in the right

lateral gutter opposite the appendix than near the perforated duodenum. The gastric juice, which is a potent irritant, excites the peritoneum to pour out a good amount of serous fluid which tends to dilute the irritant.

EVALUATION

The first source of error was directly responsible for negligence concerning the necessary laboratory work and x-ray observance of the abdomen. This laboratory aid plus a good history might well have solved the diagnostic problem. This error, however, did not adversely affect the patient's chance of recovery. The signs and symptoms produced by a perforated duodenal ulcer vary according to the time which has elapsed since the rupture occurred: (1) The stage of prostration or primary shock. (2) The stage of (advanced) frank peritonitis and secondary shock. (3) The stage of reaction (with masked peritonitis). There is no hard-and-fast limit between the stages. It is during this stage of masked peritonitis that many capable observers have been deluded into postponing surgery. The intensity of the initial shock subsides, and the patient then looks better and feels more comfortable. The circulatory system recovers to such an extent that the extremities may become warmer, the face normal in color and the pulse normal in frequency and strength, while the temperature is normal. The improvement of symptoms does not imply any cessation of the pathological process though the casual observer might easily think that real improvement were taking place. Nor is the patient's own opinion of his condition always to be trusted for he often expresses himself as "feeling much better," and he may even begin to think lightly of his condition. But his attitude and his actions belie his words. Upon the proper appreciation by the doctor of this dangerous latent period depends the patient's chance of recovery from his disease. It is at this period that the favorable opportunity for operation passes."

CASE REPORT #2

A 30 year old female entered the hospital with an admitting diagnosis of an acute

abdomen. The history was that of having developed crampy abdominal pain in the epigastrium about 8 a.m. The pain localized to the left lower quadrant at 11 a.m. Nausea and vomiting developed shortly afterward. She called her physician at 11:30 a.m. She was examined and advised to enter the hospital.

Past history revealed that she was delivered of a normal baby four weeks previously. She remembered having similar pain six weeks prior to her delivery. The pain lasted just a few hours, mild nausea was present and she thought this was due to the eating of potato chips.

Physical examination revealed a well nourished white female. She gave little evidence of being acutely ill. Sitting up in bed she announced that she "felt very well." Temperature was 100.4 degrees; pulse, 102; respiration, 20. The remainder of the examination was negative except for the abdomen where tenderness was found throughout, being much more marked in the left lower quadrant. There was rebound tenderness in this quadrant with definite muscle rigidity. The abdomen was neither scaphoid nor distended and the peristalsis was hypoactive. Vaginal and rectal examinations were essentially negative.

The blood count showed 13 gm. of hemoglobin with 4.1 million red blood cells; 20,900 white blood cells with 88 percent polymorphonuclear leukocytes, 8 percent lymphocytes and 4 percent monocytes. Urine analysis was essentially negative. Roentgenograms of the abdomen and chest were non-contributory. It was established that the patient was suffering from peritonitis due to a perforated diverticulum of the sigmoid colon and operation was decided upon.

Upon opening the abdominal cavity, exploration revealed the presence of cloudy fluid. An acute appendix was found plastered to the sigmoid colon on the left side.¹⁰ The tip of the appendix had perforated over the colon forming an abscess. Appendectomy without drainage was performed. Convalescence was uneventful.

EVALUATION

This error was long remembered because in 1946, and again in February, 1958, two similar cases were admitted to the hospital and the correct preoperative diagnosis in each case was made by this observer. It is apparent that in the above case the error was not due to a poor history. In fact, the historical sequence of events from a sign and symptom standpoint were perfect with slight variation from the normal: (1) epigastric pain and left iliac localization instead of right iliac localization; (2) vomiting, nausea, but no acute loss of appetite; (3) presence of local deep tenderness; (4) presence of muscle rigidity; (5) presence of slight fever; (6) increased white cell count; (7) negative roentgenograms. In this case the history, physical examination and the necessary laboratory aids were in perfect order. The anatomical and physiological criteria for proper diagnosis seemed to be in good order. What then was the source for error? The error was due to the failure to apply the known laws of embryology concerning rotation of the bowel. The lack of fusion of the peritoneal coats produced the condition known as "mobile cecum." Many, if not most, of the mistakes made in the diagnosis of appendicitis were due to a failure to realize the great difference in signs and symptoms which follow from the varying positions and relations of the appendix.¹¹ The appendix, though usually described as being situated behind the ileocecal junction with the tip directed towards the spleen, is not always found in that situation when it is diseased and sought for by the surgeon.¹²

Every clinician knows that the presence of general abdominal pain, nausea and vomiting with localizing right lower quadrant pain and tenderness points to the acute appendix. Yet not always does the appendix clamor so clearly or in so straightforward a fashion for its removal.¹³

THE PELVIC APPENDIX

Another dangerous position of the appendix is the pelvic appendix. In this position the early symptoms of an attack of appendicitis when the appendix is situated in the

pelvis are similar to those which ensue when it is situated above the pelvic brim, with the exception that the rigidity of the abdominal wall is seldom present in the early stages and pain is more frequently felt in both left and right iliac areas. Pain is not so readily localized in the right iliac fossa but is always felt on deep pressure at the brim of the pelvis and the epigastric pain may dominate for a longer time. The perforated pelvic appendix is easily overlooked and, therefore, one of the most dangerous conditions which may occur in the abdomen.¹⁴ The reason appears to be as follows: While the appendix is not perforated but swollen and tense, the pain caused by distention and peristaltic contraction is definite and severe and is felt chiefly in the epigastrium or umbilical area. When perforation occurs the epigastric pain diminishes and local pelvic peritonitis results. This usually is unaccompanied by rigidity of the lower abdominal muscles. When perforation occurs the pain of appendicular disease ceases, the epigastric pain diminishes and local pelvic peritonitis results. The pain due to pelvic peritonitis at this early stage frequently is insignificant, the patient may seem better and physical examination of the abdomen may give the examiner little indication of trouble in the pelvis. Usually within a few days either the peritonitis becomes definitely localized into a pelvic abscess or the inflammation may track upward, frequently along the sigmoid colon, towards the general abdominal cavity. This will give rise to increasing pain, distention and rigidity of the abdominal wall.

Fortunately, the mortality from appendicitis has been reduced during the past ten years almost to the vanishing point.¹⁵ There are many reasons for this improvement.¹⁶ The two most important factors deal with the problem of the medical advisor and the public as a whole. The modern doctor has a greater appreciation of the early signs and symptoms of appendicitis.¹⁷ As a result, we surgeons see today very few cases of late appendicitis. The second reason relates to the courage, intelligence and understanding of the medical profession in discharging its public responsibilities. If you will permit me one commercial, let me say,

"It pays to advertise." Never, perhaps, in the history of our nation has a system devoted to "education of the public" paid such rich rewards.

CASE #3

A 42 year old obese white male entered the hospital on March 18, 1958 with the admitting diagnosis of an acute abdomen. The history was of having awakened suddenly on March 16, 1958 at 5 a.m. with sharp, crampy pain in the right lower quadrant of the abdomen. He went to the bathroom and took a dose of an alkaline analgesic. Several hours later he vomited and since the pain continued he called his family doctor who sent him to the hospital for laboratory tests. Investigation of the abdomen by roentgenogram was negative. The WBC was 22,100. Urine analysis showed a two plus albumin and marked microscopic hematuria and pyuria. He was treated at home and again admitted to the hospital on the third day of his illness.¹⁸ There was radiation of the pain to the lumbar area at this time but no other urinary symptoms except frequency was present.

Past history was essentially non-contributory, and revealed nothing which would lead one to suspect the actual disease that was present.

Physical examination revealed a flushed, obese white male, appearing acutely ill. Temperature was 102; pulse, 106; respirations, 22; blood pressure, 150/82. The remainder of the physical examination was essentially negative except for the abdomen where tenderness was found throughout the lower abdomen, being more marked in the right lower quadrant. Muscle rigidity also was present over this area. The abdomen was rotund but slightly distended. Peristalsis was hypoactive. Rectal examination was negative for blood, pus, mucous, growth or tumor mass.¹⁹ Laboratory tests were essentially the same as that of March 16, 1958.

It was felt that the patient was suffering from some sort of kidney disease complicated by a localized peritonitis. The peritonitis might be due to a perforated appen-

dix lying behind the ileum. Operation was decided on with a preoperative diagnosis of acute appendicitis with perforation.

The abdominal cavity was entered through a right lower quadrant transverse incision. The appendix looked normal. The sigmoid colon was found in the right iliac fossa. The lower portion of the omentum which was acutely inflamed was found glued to this portion of the sigmoid colon. The omentum was peeled from the colon disclosing multiple perforated diverticuli. A prophylactic appendectomy was performed followed by the colonic surgery. Convalescence was uneventful.

In diagnosing acute abdominal disease it is always necessary to exclude medical diseases. There are a number of diseases which do not need or positively contraindicate operative interference.¹⁹ Was this such a case? Interpretation of the existing facts led the observer to conclude that he was dealing with two separate and distinct diseases, one of which required an immediate operation. The examiner fully appreciated the well known fact that acute abdominal disease with genito-urinary organs or to secondary irritation of those organs. A diseased appendix lying over the right ureter or in front of the renal pelvis may cause trouble in the diagnosis. He was also aware of the fact that small ureteric calculi do not always show on a roentgenographic film. The decision to defer further pyelographic studies seemed justified. The failure to identify the exact pathology²⁰ was again due to the failure to think in terms of anatomy and embryology.²¹ To have kept in mind the fact that a long and redundant sigmoid colon may be found in the right lower quadrant of the abdomen might have produced a rather brilliant preoperative diagnosis.

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DISCUSSION

Dr. James M. Hofford: When one thinks of an acute abdomen and whether an operation should be performed, several categories come to mind. Appendicitis, acute gall bladder disease, acute pancreatitis, perforated peptic ulcer, intestinal obstruction (of small or large bowel) and acute gynecological disease are some of these.

Appendicitis is frequently and should be kept first in mind. Re-evaluation of this type case is often needed, and by a careful follow-up diagnosis can be made. The atypical location of the appendix, for instance the pelvic type, might give a bizarre group of subjective and objective symptoms and signs. A rectal examination should always be done and tenderness looked for in all cases of abdominal disease.

A chest x-ray and flat plates of the abdomen should be made in cases of acute abdominal pain, especially before operation. Hematuria may confuse the diagnosis of appendicitis. This may come from nephritis or from an appendix irritating the bladder wall or ureter. Sometimes intravenous pyelography is necessary to be definitive.

An acute upper respiratory infection is associated with a mesenteric adenitis. Usu-

ally, a mesenteric adenitis will improve within six hours with antibiotic therapy.

The House Staff should remember that sometimes patients develop appendicitis in the hospital, with or without a prior disease history. People treated for ulcers sometimes develop fecaliths which lodge in the appendix. An x-ray might show calcium in the appendix.

All patients receiving cortisone should be suspected of having a perforated ulcer. Cell tumors of the pancreas must be distinguished from perforated duodenal or jejunal ulcers. The latter must be kept in mind, especially when a patient has had gastroenterostomy or previous surgery.

Acute gall bladder disease is always in the mind of the surgeon. The blood count is usually much higher than in appendicitis especially if empyema is developing. Occasionally, in an acute gall bladder which ruptures, the cystic artery will also break down and have sclerotic changes and intraperitoneal hemorrhage may occur. Since death from rupture of the gall bladder is high, it is not wise to procrastinate too long if one is in doubt about the diagnosis. Serum amylase and serum lipase should be done in doubtful cases of upper abdominal pain. With acute pancreatitis the amylase often ranges between 1200 and 6000 units, but sometimes the amylase is elevated in perforated peptic ulcer and intestinal obstruction. Occasionally, it may be elevated in acute appendicitis and cholecystitis. The statement is made that in appendicitis perhaps the amylase is elevated because of amylase-producing organisms in the intestinal tract. Following an attack of pancreatitis the patient may develop a pseudo-cyst of the pancreas. This must be watched because it may perforate or obstruct the duodenum.

When intestinal obstruction is suspected one frequently thinks of carcinoma, diverticulitis and volvulus. A practical point of diagnosis is fecal impaction, especially in older people. Since the x-ray is not always positive early in intestinal obstruction the flat plate should often be repeated after 4, 8, or more hours.

IMPORTANCE OF RE-EXAMINATION

The secret of making a diagnosis in acute abdominal disease is to re-evaluate the patient periodically. This is especially true in intestinal obstruction. Adhesions, omental bands or intussusception may occur. More rarely, tumors of the small intestine, simple or malignant, may confuse us. If a tumor of the small intestine is suspected inserting a decompressing tube, such as the Miller-Abbott tube, and passing a little barium down the tube might help in the diagnosis. Foreign bodies in the small intestine may produce obstruction, as one author described due to a piece of undigested steak.

Ileus due to gall stones is not as uncommon as suspected. If the stones are 2.5 cm. in diameter or greater, they can readily cause an obstruction. If less than that they often pass through, and can be found in the bed pan. Air may be seen in the gall bladder or in the bile ducts because these patients have passed the stones by way of cholecystoduodenal fistula.

Even a large bolus of worms may obstruct the intestine. Of course, one must always be on the look-out for hernia as a cause of intestinal obstruction. Omental infarction should always be thought of. Some cases have been reported with torsion of the omentum and some without.

An excruciating pain in the upper part of the abdomen and board-like rigidity, with or without a prior history of abdominal distress, might suggest a perforated ulcer. Here, the x-ray is a valuable aid, because you often see free air under the diaphragm to the right or left. When the x-ray does not show air it might help to pass a Levine tube, removing the stomach fluid. Once this fluid has been removed air may pass through the site of perforation and the x-ray can be repeated. A lateral decubitus film also may be of value so gas may be seen under the right side of the diaphragm.

After 24 to 72 hours suffering with an acute ulcer the patient may go into a state of severe shock. Then the symptoms of chemical peritonitis arise and mask the original diagnosis. In this case, the abdomen

may be soft and may be confused with a coronary occlusion.

Some cases of perforated ulcers may be treated conservatively if the perforation is mild. These cases may be treated with Levine tube suction. Some other patients with perforated ulcer may spill the intestinal or gastric contents along the right side of the abdomen, and pain in the right lower quadrant with rigidity might suggest appendicitis. If the error is made and the appendix brought into view, it is important to open the appendix and make sure the large inflammatory mass surrounding the appendix has its origin there. If one is not sure, then the duodenal and gastric regions should be checked for perforation.

Diverticulitis is becoming more common in the large bowel and perforating carcinoma of the large bowel can stimulate appendicitis. Helpful here is the presence of anemia and blood in the stool. A pelvic examination should be done in the case of all female patients. Frequently, with a twisted ovarian cyst there may be an associated paralytic ileus.

Rupture of the graafian follicle at the mid-stage of the menstrual cycle may confuse the doctor. Pneumonia may result in abdominal distention and the chest should be gone over carefully in all cases. An electrocardiograph should be taken with a careful heart history. Herpes zoster in the pre-vesical stage can be confusing and cause abdominal pain. Sick-cell anemia in colored people gives abdominal pain. Diabetic acidosis has often been confused with appendicitis. Porphyria may produce abdominal pain. Palpation of the abdomen by the surgeon before operating may reveal conditions which were present before.

An interesting abdominal problem is hydatid cyst. A case of this type was reported in a 60 year old lady who had been to the Near East. While there, 20 years ago, her main companion was a dog. Recently she developed an upper abdominal mass which pressed the colon downward. She was found to have a large hydatid cyst. Sheep and dogs frequently help in the transmission of the coccus which produces hydatid cyst.

One should try never to spill the contents of a cyst. It should not be needled because it can spread the disease in the abdomen.

To go to the extreme, a 10% solution of fructose given in 20 minutes has been reported to cause severe abdominal pain. One must watch for hepatitis with abdominal pain. A case was reported recently from the administration of chlorpromazine which caused a hepatitis followed by abdominal pain.

Rupture of an aortic abdominal aneurysm must be kept foremost in mind. There are three signs to look for: flat plate of the abdomen shows absence or lowering of the solar shadows; the patient may show a loss of patellar reflexes or lower abdominal reflexes, ecchymotic spots may be found on the extremities and in the perineum.

Acute abdominal disease can be a research project in itself.

Dr. Harold A. Tarrant: I have been asked to discuss a case of a 47 year old widow who had complained of obstipation for a period of several days and had had advice from a local physician with a specific request that the patient keep in contact with the doctor daily, noting her progress. Apparently, from the history given she became progressively worse over a weekend and did not call her family physician, but instead was taken to one of the local hospital emergency rooms by her son for examination, diagnosis and treatment.

The intern was told that the patient was unable to pass gas, that she had had no bowel movement for three or four days, that she was experiencing abdominal pain, intermittent in character, dull to sharp and some abdominal distention. At the time of examination she had no temperature but did have abdominal distention and her family was told that her trouble was constipation. It was recommended that the patient be taken home and given a laxative and an enema. If this did not relieve she was to contact her physician. Unfortunately, no rectal examination was made, nor was there any blood count done.

These orders were carried out by a relative and, after the enema was given, some abdominal pain was noted in the right lower quadrant. The patient became progressively worse and a local physician was called to examine the patient at home. It was obvious that she had an acute intestinal obstruction. An opiate was given and she was admitted immediately to a local hospital for hydration and surgical opinion.

On admission she had an elevated temperature, leukocytosis, abdominal distention with absence of peristalsis and a palpable mass in the right lower quadrant. The surgeon was of the opinion that she had an intestinal obstruction. He recommended that she be subjected to surgery and a laparotomy be done immediately.

At the time of surgery there was evidence of an intussusception with a sizeable area of gangrenous colon which was resected, and although the patient had a stormy convalescence she did recover. Unfortunately, she later developed many sequelae which required further surgery.

This case has been presented briefly to draw to the attention the fact that it is important for interns and residents to have supervision by chiefs on the services in order that opinions may be obtained, and that these cases may receive suitable care to the best interest of all parties concerned.

Why are we missing the diagnosis in these cases? Are we taking incomplete histories, or placing too much emphasis on negative or atypical laboratory findings? Perhaps we are sometimes over-conservative in our attitude toward surgery and need to evaluate our criteria for performing exploratory surgery.

Dr. Joseph Hughes: I would like to say something about acute appendicitis. The surgeon often decides to operate because the patient is sent in with a diagnosis of acute appendicitis. After the patient is admitted to the hospital the surgeon should follow through with all the known methods of examination and rule out the obvious things that could present similar symptoms. Renal calculi, pelvic inflammatory disease, and pneumonia should be ruled out. This

is best done in cooperation with the family doctor or internist. If, by a process of elimination, he has ruled out most of the differential diagnoses, then I think he is justified in going ahead and operating on the patient.

Here again, the surgeon is on the spot if he removes a normal appendix. He is then subject to the criticism of the tissue committee, which is a necessary committee in every well run hospital. Johns Hopkins Hospital recently put out a report which was presented in one of their conferences. They claim to remove 15% to 25% of appendices in which the specimen does not show any acute pathology. Fortunately, I was able to talk to the doctor concerned with this report and he says that this is similar on both the ward service and the private service. He justifies that it is better to operate on a doubtful case, especially when rupture, gangrene, abscess and peritonitis can be avoided. This is particularly so in children.

I do feel, however, that the tissue committee should invite the doctor concerned with such a case to appear before them and present his case and also present it before the surgical departmental meeting. By doing so, and going over the methods of his diagnosis and his management, it would be possible to improve on the diagnosis in future cases.

Dr. Lawrence J. Jones: The diagnosis of appendicitis is very difficult to make and to differentiate from other causes of the acute abdomen. Recently, I saw a young girl, 15 years of age, who was tender over McBurney's point. I thought she had a regional lymphadenitis but the family was insistent on operation. This I refused to do. The abdomen quieted down and the patient went back to school. Later, I heard that she had had another attack and her appendix was removed in a hospital close to her school. Evidently she had appendicitis.

Dr. David J. Reinhardt: May I comment on Dr. Serino's paper concerning the part in which he discusses the EKG in a case of acute pancreatitis? One should be able to make a differentiation between the abnormal

cardiogram in this case and a cardiogram which is diagnosed acute myocardial infarction. Exceptions may occur. For example, the patient with pancreatitis or some other abdominal disease may have had an old coronary and have Q-waves and other changes which might be confusing. In a case like this, it is very helpful to know the previous history and to have a baseline cardiograph in all patients.

Dr. Joseph Arminio: In reference to tissue committees, if one is on this committee he must assume a certain amount of responsibility and take a certain amount of criticism, just or unjust. Of course, the important thing to do after an operation is for the surgeon to put his findings in writing. That is the one thing which I think all of us have heard from medical school to internship. If we were all a little more diligent in writing down more explanations of our actions in diagnosis and treatment the patient would be better off and so would we. A positive diagnosis is pretty straightforward and often needs little comment, but the ones that aren't straightforward should have more important details written down about them. This should contain a great deal of thought. The tissue committee has little difficulty with cases that are well written up.

Dr. George Boines: The medical man has as much difficulty as the surgeon in diagnosing the acute abdomen. To support Dr. Serino's statement about the ease of error in such diagnoses, I wish to relate to you a few cases.

A patient, age 56, male, white, was complaining of abdominal cramps. He was admitted to the hospital on March 3, 1958. I.V. pyelograms showed bilateral double kidneys and ureters. He was discharged. On May 12, 1958 he was readmitted for a painful abdominal mass. Surgery showed ruptured diverticulum with adenocarcinoma of the transverse colon.

The next case, a female, age 44, white, who complained of pain in the right upper quadrant with all the clinical evidence of gall bladder disease. X-rays showed poor function of the gall bladder but no stones.

The surgeons did not feel the clinical findings were sufficient to operate. The patient thought she had gall bladder disease because her father was operated and found to have cancer of the gall bladder which had perforated. The daughter insisted on operation. She was found to have a cholecystitis, and the gall bladder was removed.

The next patient was age 19, white female, who complained of pain in the right lower quadrant and had had several attacks since 1956. She was admitted to the hospital on July 21, 1957 and diagnosed as pelvic inflammatory disease. She was sent home with this diagnosis. However, she was readmitted to the hospital on January 8, 1958 and was operated on for appendicitis. A retrocecal appendix with pus was found; normal ovary and tubes were found.

A female, age 24, white, was hospitalized for acute pain in the lower right quadrant. At this time, she was four months pregnant. She was hospitalized five times in 1953 by other physicians for similar abdominal pain. Her blood count and temperature were normal. For this reason, surgeons did not feel that there was an indication to open her abdomen. Conservative treatment, therefore, was instituted. However, on a hospital admission on August 8, 1954 she was operated and an appendix attached to the posterior parietal wall was found surrounded by an abscess.

Dr. G. S. Serino: Not only a good history is necessary, but also a good examination. Certainly a distended, enlarged abdomen should never be missed and the younger doctors, as well as the older, should look over every abdomen very closely especially

if there has been a history of recent vomiting. However, the most difficult and dangerous case is the flat abdomen which has a hidden obstruction.

Some doctors maintain that changes in the cardiograph in cases of acute pancreatitis were of the type that might occur in acute myocardial infarction. However, I am glad to hear that Dr. Reinhardt thinks that such cardiographs can be distinguished from acute myocardial infarction, especially with the aid of the serum transaminase test.

In reference to Dr. Boines' questions, I do agree that sometimes we have incomplete histories; the sicker the patient, the more detail should be gone into. In reference to laboratory findings, I think we should use them as an aid to our clinical observations and not use the laboratory as the sole guide. Sometimes this takes a great deal of maturity to develop the judgment to add the link of the laboratory chain to the other subjective and objective symptoms and signs. This is where consultation comes in, especially in those cases where judgment is the only thing that will bring better diagnosis.

I think it is true, as Dr. Hughes brought out, that occasionally a prophylactic operation for appendicitis or a prophylactic abdominal exploration may have to be done. Sometimes when the family doctor or internist is not sure, and valuable time is being wasted, it is better to do surgery while the patient is in good condition. The margin of error of 15% to 25% is justified by the avoidance of the greater mistake of missing a gangrenous peritonitis, for example.

MALIGNANT URETERAL TUMOR (CASE REPORT)

BRICE S. VALLETT, M.D.*

The purpose in reporting this case of malignant ureteral tumor is to point out the variety of attack necessary at times in achieving palliation and sometimes a cure. Experience has shown that the malignant papillary type tumors of the ureter are more amenable to therapy than the malignant non-papillary type which usually has a fatal outcome.

A white male, 60 years of age, was admitted to St. Francis Hospital on July 20, 1954 for diagnosis and relief of painless hematuria with blood clots. Six months prior to admission he had passed some reddish urine for which a private physician had prescribed medication. His general health had always been good. One sister had died from cancer.

Cystoscopy July 20, 1954 revealed a papillary type tumor surrounding and involving the left ureteral orifice. On July 21 an excretory urogram revealed no function of the left kidney. The right pyelogram was normal. On July 22 endoscopic vesical neck resection of the tumor was carried out and eight platinum radon seeds (2.5 mc. each) were implanted in the bladder wall at the site of the tumor base. On August 30, 1954 the left ureter was catheterized and a large hydronephrosis of the left kidney found on pyelography with a filling defect of the lower pole. Urine from this kidney had not revealed any cells suggesting malignancy.

September 2, 1954: Left nephroureterectomy and segmental resection of the bladder wall, including the area of the left ureteral orifice and former bladder tumor site, was carried out.

The pathologic diagnosis was transitional cell carcinoma of the ureter (Grade I) and hydronephrosis.

January 16, 1957: There was recurrence of the bladder tumor and endoscopic resec-

tion and electro-coagulation was again carried out. However, it was apparent that there was still inaccessible tumor remaining on the anterior bladder wall. The resected tissue was classified as Grade II transitional cell carcinoma.

January 22, 1957: Suprapubic cystostomy was done with electro-coagulation of all visible tumor tissue. Some of this tissue was classified as Grade III transitional cell carcinoma.

June 25, 1957: There was recurrence of tumor, especially on the anterior bladder wall, only a part of which was accessible to cystoscopic electro-coagulation. Some of this tissue was examined microscopically and classified as Grade I transitional cell carcinoma.

July 5, 1957: A "radium catheter" was introduced through the urethra into the bladder and allowed to remain until July 9 when it was removed. On July 23, this maneuver was repeated, the catheter being removed on July 27.

January 8, 1958: There was no evidence of any tumor recurrence in the bladder. There was some evidence of "radium cystitis." However, the patient was singularly free of complaint referable to his bladder or to urination.

COMMENT

While it is too early to claim a cure for this case, W. W. Scott¹ has stated that "it would seem from the records that any patient who has no evidence of tumor four years or more after operation has a fair chance of being cured."

As ureteral tumors metastasize early, it is imperative that early diagnosis be made. All bleeding from the urinary tract should have adequate evaluation. Hydronephrosis in individuals over 50 years is always suspect for ureteral tumor. The Papanicolaou

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stain of the urine is an invaluable aid in diagnosis in early cases. Jarrett² reported this as the only positive finding in an early transitional cell carcinoma (Grade II) of the left ureter. Complete nephroureterectomy was done in November 1955, and this patient is alive and well four years later.

In children ureteral tumors are exceedingly rare and when they do occur are usually benign. Leader³ diagnosed a ureteral tumor in a 12 year old boy. The "circle sign" of Nesbit was present on ureteral catheterization and at operation the left kidney was found to be normal. One centimeter below the ureteropelvic junction the ureter was dilated and on gentle palpation thought to contain a solid tumor mass. A two centimeter segment of the ureter containing the tumor and one centimeter of the distal renal pelvis was resected and submitted for frozen section. The tumor proved to be a fibromatous polyp.

SUMMARY

1. A case of malignant papillary carcinoma of the left ureter is reported with no evidence of recurrence after four years.
2. Recurrent tumor of the bladder was observed as long as three and one half years after removal of the ureter tumor.
3. The Papanicolaou stain of centrifugalized urine aids in detecting early malignant changes in the urinary tract.
4. Ureteral tumors in children are usually benign.

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(Cont. from page 319)

child, Coombs' test as shown in Table II

- d. Paroxysmal cold hemoglobinuria (Note: The term paroxysmal hemoglobinuria [some authors talk of "hemoglobinuria" instead of paroxysmal hemoglobinuria] refers to sudden intravascular hemolysis followed by hemoglobinemia and hemoglobinuria. Several closely related clinical syndromes are included under this heading, i.e., paroxysmal cold hemoglobinuria in lues, paroxysmal nocturnal hemoglobinuria, also called Marchiafava-Micheli syndrome, March hemoglobinuria, cold hemoglobinuria in primary atypical [viral] pneumonia, and on rare occasions in other viral and rickettsial infections.) Paroxysmal cold hemoglobinuria is an uncommon

disorder, characterized by sudden passage of hemoglobin in the urine, following local or general exposure to cold. Aching and pain in the back, legs or abdomen and other symptoms of acute hemolysis, such as chill, fever and malaise, are associated with the passage of dark brownish urine. Other findings are those characteristic of acute hemolysis.

Summary for study of a patient with a hemolytic disorder: Hemolytic anemia can be recognized by the development of certain symptoms and signs, certain changes in the blood and bone marrow and characteristic alterations in hemoglobin and bilirubin metabolism as already outlined. The differentiation of the various hemolytic disorders is important since treatment depends on their nature.

End of Part I
(To be continued)

THE HOMEOSTATIC CONTROL OF THE FEASTING BLOOD SUGAR

EDWARD M. BOHAN, M.D.*

Medical interest in the feasting blood sugar has increased rapidly. It is being used to some degree in all Wilmington hospitals. On the metabolic service at St. Francis Hospital and on all medical non-diabetic patients on medical service, it is used as a routine test on admission of the patient.

Sindoni¹ originated medical literature on the subject as early as 1939. In 1946 he² published material on a series of cases not diabetic, which had feasting sugars one-half to four hours after a test meal. This test meal consisted of 32 grams of protein, 64 grams of fat and 96 grams of carbohydrate. This was a breakfast-type meal. At no time following the meal did the blood sugar rise above normal.

In order to understand this phenomenon one needs to think in terms of homeostasis of the glycemic level of the blood. Soskin³ describes this physiological principle in a masterful fashion.

Many writers^{4,5,6,7,8} still quote the feasting blood sugar at a height of 140 mgm. to 170 mgm. per 100 cc. of blood and say that the physician should suspect diabetes if the blood sugar exceeds these levels. In the first place, only a person with deranged carbohydrate metabolism will run a sugar over 140 to 170 mgm. per 100 cc. of blood. Secondly, no normal person will exceed 120 mgm. feasting at any hour following a meal.

The meal tolerance test of Sindoni² does not place the same stress on the homeostatic mechanism of blood control that the 50 or 100 grams of glucose does. There is much faster absorption of plain glucose with a rise as high as 150 to 180 mgm. per 100 cc. of blood.

The meal tolerance does not cause a rise this high. It has been proven to be not higher than 120 mgm. per 100 cc. of blood at any time following the meal by the actual records of hundreds of cases performed routinely on my office patients and hospital patients known to be non-diabetic.

However, if the patient is diabetic the post-prandial sugar will be elevated or if a temporary derangement of carbohydrate metabolism occurs, as in coronary thrombosis, cerebral vascular accident or administration of intravenous or oral glucose, then the feasting sugar will be elevated but this is not due to diabetes.

This knowledge of what disturbs the homeostatic control of the blood sugar enables us to use the feasting sugar as a diagnostic aid. Any blood sugar known to be laboratory accurate over 120 mgm. per 100 cc. of blood should be investigated for the possibility of diabetes mellitus.

Is the post-prandial *capillary* sugar accurate? Does it exceed the *venous* sugar taken at the same time? Evidently there is very little difference between the capillary and venous results—vide infra.

Soskin⁹ points this out in quoting Cavett and Seljeskog. They made a comparison of the reaction of sugar tolerance curves to 50 grams of glucose given by mouth. Simultaneous capillary and venous testing was performed in these non-diabetic subjects.

The capillary curve ran very slightly higher than the venous throughout the test but both venous and capillary curves were exactly similar in course in these non-diabetic subjects.

Therefore, it can be assumed that capillary and venous blood sugars are so identi-

* Chief of Metabolism, Director of Research, St. Francis Hospital, Wilmington, Delaware.

cal following the meal tolerance test that the results can be interchanged for all practical purposes.

More data on capillary feasting sugars was supplied by Orent-Keiles and Hallman¹⁰ who estimated capillary sugars on this feasting basis in 1949. They gave 56 volunteers eight different food combinations, ranging from a cup of coffee to a breakfast containing 758 calories. Capillary blood sugars, using the Folin-Micro method, were taken at one-half to three hours after these various types of meals. Results were obtained at one-half hour intervals.

The maximum two-hour rise in the whole series was up only 23 mgm. from the fasting. In other words, the fasting blood sugar was 79, and the feasting blood sugar, 102. This was the maximum single rise, not the average. The average of the whole 56 cases was only 8 mgm. above the fasting level; exceeding 120 mgm. feasting on one occasion (127 mgm. per 100 cc. of blood).

In May, 1951, Ackerman and Bohan¹¹ published a verification of Sindoni's original work.

Gerber, Bove, and Macy¹² at the Philadelphia General Hospital also have substantiated the above findings in their clinical work and writings.

At St. Francis Hospital, we have picked for this paper 100 random cases of 2 hour post-prandial sugars on known non-diabetics. In my office, I have performed post-prandial blood sugars as a routine check for the past 13 years. The results of the hospital and 50 office cases are in the table at right.

Believing that the post-cibal sugar exceeds 120 mgm. in non-diabetics is, therefore, a medical fallacy. In discussing the culture of the Middle Ages, Hayes and Moon¹³ noticed that there was a tendency for medieval scholars to derive their notions of science not from personal observation and experiment, but from books. What our teachers have taught us, we are inclined to believe. Respect for teachers we must have, but all is not verity in the classroom or lecture hall. One must sift the grains of

FEASTING BLOOD SUGARS*—
(TWO HOURS)

1957									
HOSPITAL PATIENTS					OFFICE PATIENTS				
85	96	80	83	95	92	82			
80	104	85	104	85	86	93			
115	90	93	100	80	69	106			
						108			
81	107	100	100	98	114	98			
						118			
76	104	100	125	76	88	112			
						112			
123	120	99	96	93	81	104			
						85			
86	91	95	76	79	90	96			
						70			
87	110	100	102	95	82	88			
						83			
90	119	80	83	117	76	90	87		
110	79	81	99	98	90	104			
1958									
HOSPITAL PATIENTS					OFFICE PATIENTS				
80	95	95	95	96	78	98			
100	108	88	93	80	89	116			
125	92	85	88	79	90	102			
104	100	95	85	80	98	86			
82	110	85	95	74	117	86			
116	100	78	85	83	113	109			
87	79	95	78	79	114	83			
80	79	96	95	80	82	80			
73	109	111	96	100	89	120			
80	95	95	111	82	88	114			
					86	118			
						117			

*Venous method

sand to find the gold. Search for truth then becomes research.

Sindoni emphasized in 1939¹⁴ that "It is most important to examine the blood for sugar because of the significance and accuracy of the information it gives, as to the true state of the diabetes. Urine sugar control of diabetes is inaccurate, because it depends on the renal threshold which varies with many factors." If this is true, and the evidence supplied by Sindoni is great, then one should use the blood sugar more often as a control in the management of diabetics.

Knowing the feasting sugar level of 120 mgm. per 100 cc. of blood is top normal, then one may use the fasting and feasting

sugar for the control of diabetes. The feasting sugar also may be used as a more accurate method of diagnosis.¹⁵

Capillary sugars can be used for diagnosis and treatment in the office, in the patient's home or in the hospital. Capillary screening sugars can be performed on the hospital floor if one wishes to use a kit. This is good for an eight-minute bedside level. While it does not give the exact reading, it enables the nurse and doctor to intelligently avoid extremes of glycemia while a patient is under treatment for acidosis, coma or simply stabilization.

SUMMARY

1. The feasting blood sugar in the non-diabetic does not exceed the fasting at any time after an average meal.
2. The homeostatic regulation of the feasting blood sugar is dependent on the liver. This organ pours sugar into the blood prior to the administration of food. It then apparently ceases to do so when food is given and starts to store sugar.
3. Therefore, the feasting blood sugar never rises above the top fasting level of 120 mgm. in the non-diabetic.
4. Capillary sugars seem to vary slightly from venous sugars. One wonders whether they might be used interchangeably in diagnosis and treatment of diabetes mellitus.
5. Sindoni originated the feasting-sugar normal level. After 13 years' observation of his work, and that of Gerber, Bove, and Macy, I am convinced of the feasting sugar level described above.

6. 150 cases of feasting sugars on hospital and office non-diabetic patients are quoted by the author. The maximum venous sugar reached 123 mgm. per 100 cc. of blood on only one occasion. The average was well below 120 mgm. per 100 cc. of blood.
7. A feasting venous sugar over 120 mgm. per 100 cc. of blood should be considered diabetic unless proven otherwise. Joining this knowledge with a family history of diabetes and a glucose tolerance test will result in more accurate diagnosis of diabetes mellitus.

ACKNOWLEDGMENT

Thanks to Miss Ann Moran, R.R.L. for her assistance in compiling and arranging this article and other articles of the St. Francis Hospital's issues in the Delaware State Medical Journal for 1958.

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+ Editorials +

SERVICE ABOVE SELF

On October 31st a man died in the city of Wilmington. This man probably was not known by name to other than a few members of the medical profession. His works, on the other hand, were known to most of us.

This man had retired as a grocer more than ten years ago because of his health. He had suffered a severe heart attack many years ago and his physicians had advised him that he must limit his activity strictly if he were to survive. Following his heart attack, he had severe bouts of angina which were brought on by the slightest exertion. Despite this, he devoted two days a week, without compensation, to helping patients at the Veterans Hospital. We all know the Gray Ladies of the American Red Cross. This man was the only male Gray Lady in

the State of Delaware. He instructed patients in certain crafts such as belt weaving as a form of diversion during their convalescence. Far more important than this, however, was the manner in which he imparted his optimistic philosophy to all those with whom he came in contact. Three years ago he suffered a thrombo-embolic accident to one of his major blood vessels. This did not stop his activity except for a brief time. Over the past twelve years, he kept up this program by spending a day in bed after each visit to the hospital.

Jim Arieff will be greatly missed by the few of us who knew him personally; his good works will be missed by many who knew only his results.

MEDICAL WRITING

A physician could be one of the best trained men in the world and yet be ineffective because he is unable to transmit his thoughts to others.

The Graduate School of Medicine of the University of Pennsylvania has been training physicians in the different specialties for about forty years. In 1958, a course in medical writing was presented to a small group of these students as an experiment to determine how well such a course would be received. The response from the students was enthusiastic and there is no doubt but that the graduate student physicians will henceforth demand instruction in this valuable field.

Many of the internes and residents in our hospitals in Delaware are training themselves for a field of specialization. It is im-

portant to them that they learn how to properly express their thoughts to others. Practice is an excellent teacher and the State Medical Journal is an excellent medium in which the young physician may gain experience in medical writing. His paper not only will be considered by a group of physicians in regard to the technical content but, if accepted for publication, it will be edited by a professional medical writer. This can be extremely valuable to a beginner who, seeing his own work corrected and rewritten, will gain valuable experience.

There is not a hospital in the state that does not have a number of cases that are worthy of publication in a state journal. It is up to the senior members of each staff to guide the younger men in this important part of their training.

MAJOR MEDICAL MEETINGS IN DELAWARE

Standing Schedule

Beebe Hospital	General Staff	2nd Friday	Monthly
Delaware Hospital	General Staff	2nd Tuesday	Feb., May, Sept., Dec.
Kent General Hospital	General Staff	3rd Tuesday	Monthly
Memorial Hospital (Wilmington)	General Staff	2nd Tuesday	Jan., March, June, Oct.
Milford Memorial Hospital	General Staff	2nd and last Tuesdays	Monthly
Nanticoke Memorial Hospital	General Staff	1st Thursday	Monthly
St. Francis Hospital	General Staff	4th Tuesday	March, May, Oct.
		1st Tuesday	December
Wilmington General Hospital	General Staff	4th Tuesday	Jan., April, Sept., Nov.

Kent County Medical Society	Monthly Meeting	3rd Tuesday	September - June
New Castle County Medical Society	Monthly Meeting	3rd Tuesday	September - June
Sussex County Medical Society	Monthly Meeting	2nd Thursday	September, June

Delaware Academy of General Practice	Monthly Meeting	1st Tuesday	September - June
Delaware Pathology Society	Weekly Meeting	Each Friday	

Special Schedule

Medical Society of Delaware	Premature Institute	A. I. du Pont Institute	December 3, 1958
Medical Society of Delaware	Medico-Legal Symposium		February 22, 1959
Medical Society of Delaware	Annual Meeting	Academy of Medicine	October 14-15, 1959
American Medical Association	Annual Meeting	Atlantic City, N. J.	June 8-12, 1959
Delaware Academy of General Practice	Annual Meeting	Kent Manor Inn	December 6, 1958
Delaware Academy of Medicine	Building Dedication	Academy of Medicine	October 14, 1959
Delaware Health Forum	"Headaches"	P. S. du Pont School	November 25, 1958
Delaware Health Forum	"Emotional Development and Disturbances of Childhood"	P. S. du Pont School	February 24, 1959
Delaware Health Forum	"Life Stress and Bodily Disease"	P. S. du Pont School	March 24, 1959

Delaware Division, American Cancer Society	Annual Meeting		October 22, 1959
Delaware Chapter, American Heart Association	Annual Meeting		May 19, 1959
Mental Health Association of Delaware	Annual Meeting		April 30, 1959

The Journal will be pleased to receive notice of major medical meetings in this area for inclusion in this schedule.



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*A Symposium on the Pharmacologic Effects of Dartal on the Liver, Chicago, Searle Research Laboratories, Feb. 7, 1958.

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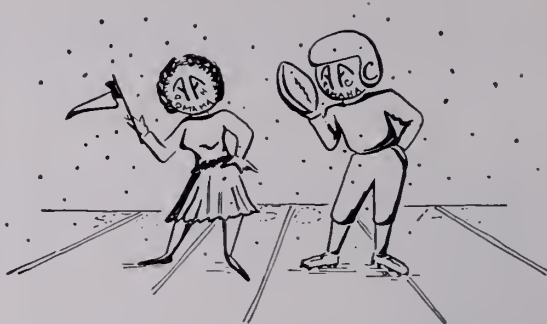
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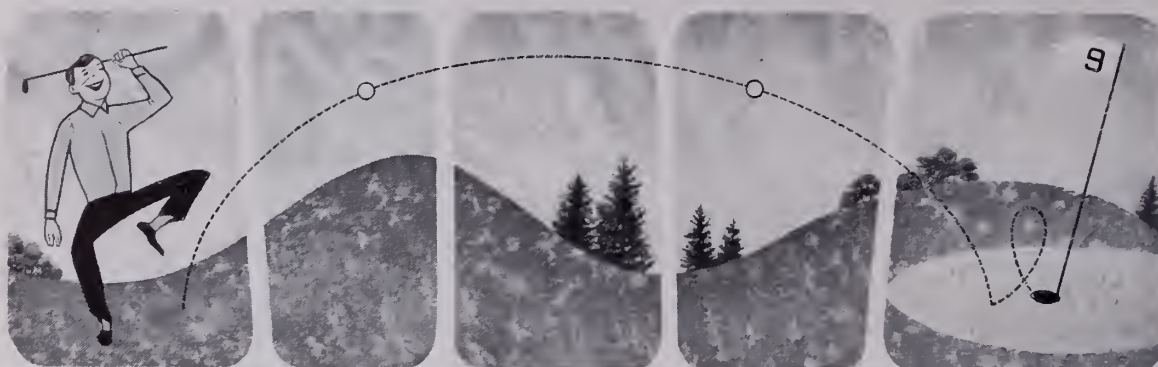
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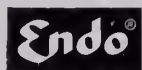
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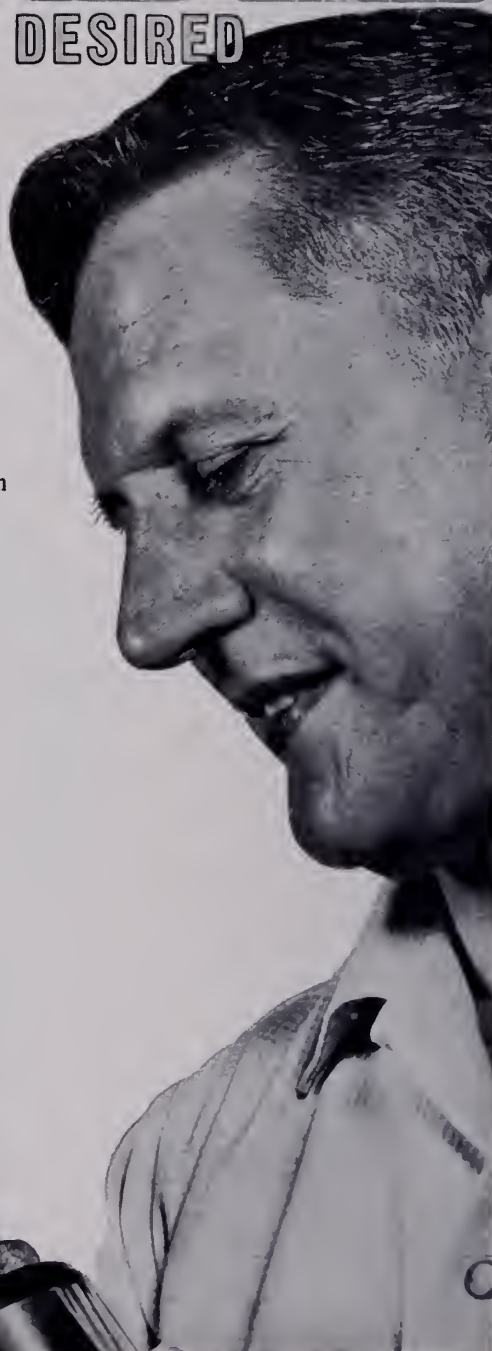


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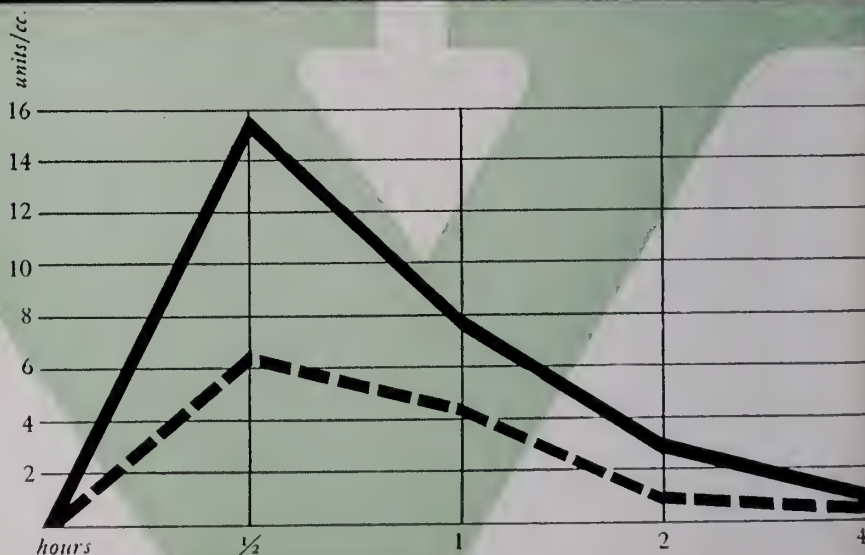
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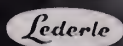
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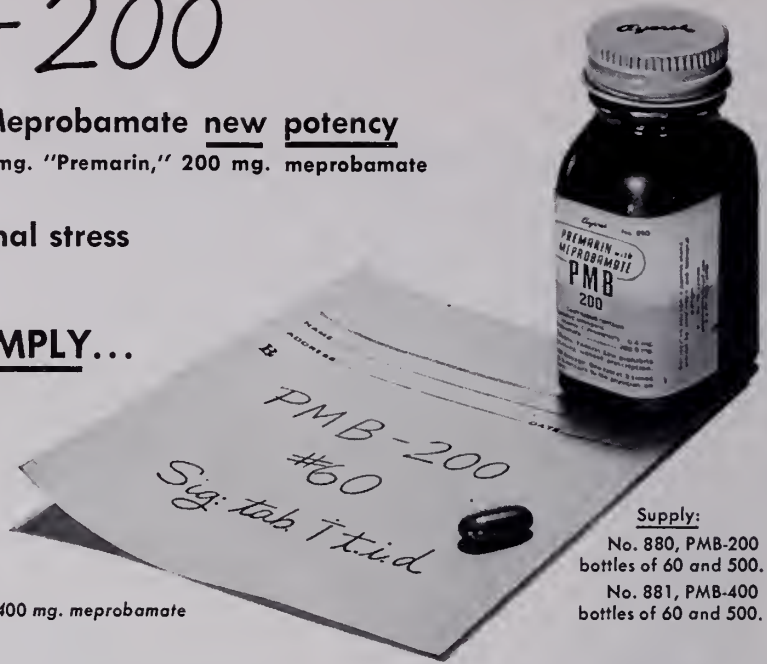
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Official Organ of the Medical Society of Delaware

INCORPORATED 1789

VOLUME 30

DECEMBER, 1958

NUMBER 12

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Complete Contents on Page iv



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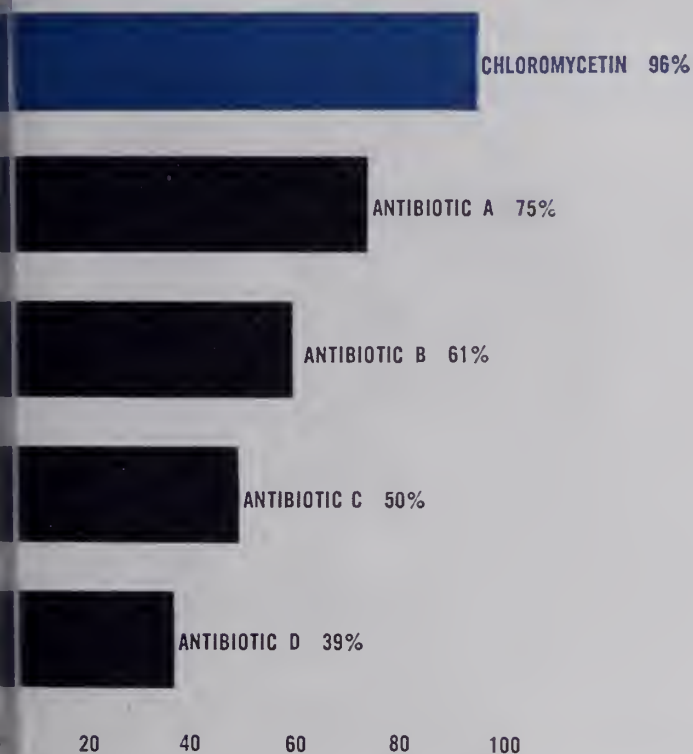
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Zanchol (brand of florantyrone), a distinct chemical entity unrelated to the bile salts, provides the medical profession with a new and potent hydrocholeretic for treating disorders of the biliary tract.

The high degree of therapeutic activity of this new compound and its negligible side reactions yield distinct clinical advantages.

- Zanchol produces a bile low in sediment.
- Zanchol enhances the abstergent quality of bile.
- Zanchol produces a deep, brilliant green bile, regardless of its original color, suggesting improved hepatic function.

- Zanchol improves the flow and quantity of bile without increasing total bile solids.

Bile with these qualities minimizes biliary stasis, reduces sediment and debris in the bile ducts and discourages the ascent of infection.

For these reasons ZANCHOL has shown itself to be a highly valuable agent in chronic cholecystitis, cholangitis and care of patients following cholecystectomy.

Administration: One tablet three or four times a day. Zanchol is supplied in tablets of 250 mg. each. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

SEARLE

Mazola® Corn Oil...a palatable food effective in the management and control of serum cholesterol levels

Extensive clinical tests show that when the diet contains an adequate amount of Mazola Corn Oil, serum cholesterol levels tend to be normal...high blood cholesterol levels are lowered, normal levels maintained.

Fortunately for both physician and patient, Mazola Corn Oil is not only rich in unsaturated fatty acids, it is also a delicious food. It becomes an enjoyable and normal part of the patient's daily meals—no complicated or special diet is required.

Here is a therapy easy for you to prescribe, easy and pleasant for your patients to follow.

Nutritional authorities generally recommend that fats should provide no more than 30% of the total calories. In cholesterol-lowering diets from one-third to one-half of these fats should be unsaturated, such as in Mazola Corn Oil.

IN COOKING OR SALADS

Mazola Corn Oil is a superlative cooking oil as well as a delicious salad oil. Adequate amounts can be eaten daily—in a wide variety of salad dressings and in a great number of fried and baked foods.

MOST EFFECTIVE

Pure, clear, bland and odorless. Mazola Corn Oil is stable and dependable, providing the full measure of cholesterol-lowering unsaturated fatty acids characteristic of corn oil.

ECONOMICAL

Mazola Corn Oil is sold in grocery stores throughout the country, is available everywhere. Its comparatively low cost makes it as economical as it is effective.



CORN PRODUCTS
REFINING COMPANY



MAZOLA* CORN OIL is a rich source of unsaturated fatty acids. It can form a regular part of the diet without major changes in eating habits to provide an effective unsaturated oil as a part of the daily meals.

EACH TABLESPOONFUL OF MAZOLA CORN OIL PROVIDES NOT LESS THAN:

Linoleic Acid	7.4 Gm.
Sitosterols	130 mg.
Natural Tocopherols	15 mg.

TYPICAL AMOUNTS PER DIET

For a 3600 calorie diet	3 tablespoonsful
For a 3000 calorie diet	2.5 tablespoonsful
For a 2000 calorie diet	1.5 tablespoonsful

*Reg. U. S. Pat. Off.

DIUPRES

DIURIL[®] WITH RESERPINE

effective therapy for most patients

DIUPRES by itself usually provides effective therapy for a majority of patients with mild or moderate hypertension, and even for many patients with severe hypertension. Many patients now treated with other agents which frequently cause distressing side effects can be adequately managed with well tolerated DIUPRES.

provides basic therapy

Should other drugs need to be added to DIUPRES, they can be given in much lower than usual dosage so that their side effects are often strikingly reduced.

rapid onset of effect

The antihypertensive action of DIUPRES is rapidly evident. (Considerable time may elapse before the antihypertensive effect of reserpine alone is observed.)

fewer and less severe side effects

DIUPRES may be expected to cause fewer and less severe side effects than are encountered with other antihypertensive therapy. (Since DIURIL and reserpine potentiate each other, the required dosage of each is usually less when given together as DIUPRES than when given alone. Such reduction in dosage makes side effects less likely to occur.)

often obviates weight gain

DIUPRES minimizes the problem of weight gain seen with reserpine (reserpine alone has been reported to produce weight gain in 50 per cent of patients).^{1,4}

virtually eliminates fluid retention

DIUPRES is not likely to cause either clinical or subclinical retention of sodium and water. (Hypotensive drugs, par-

ticularly rauwolfia⁵ and hydralazine,⁶ may cause fluid retention. Even when such retention is subclinical, their antihypertensive effectiveness is diminished.⁶)

diet more palatable

With DIUPRES, there is less need for rigid restriction of dietary salt, which patients find so burdensome.

*"It may well be that the drug [DIURIL] produces the benefits of a markedly restricted low sodium diet but without its hardships."*³

subjective and objective improvement

DIUPRES allays anxiety and tension, thus reducing the emotional component of hypertension. Organic changes of hypertension may be arrested and reversed. Headache, dizziness, palpitations and tachycardia are usually promptly relieved by DIUPRES. When the *anginal syndrome* accompanies hypertension, the administration of DIUPRES may also cause diminution or even disappearance of this syndrome concurrent with control of the hypertension.

convenient, controlled dosage

Instead of two separate prescriptions, you write one prescription . . . the patient takes one tablet, rather than two different tablets . . . and the dosage schedule is easier for the patient to remember and follow.

*"patients have fewer lapses and make fewer mistakes in dosage, the simpler the regimen can be made. Therefore I do not hesitate to use more than one medication combined in one tablet, provided this gives approximately the correct dosage of each."*⁶

economical

DIUPRES will cost the patient less than if he were given two separate prescriptions for its components.

Indications:

DIUPRES is indicated in hypertension of all degrees of severity. It can be used in the following ways:

- as total therapy
- as primary therapy, adding other drugs if necessary
- as replacement or adjunctive therapy in patients now treated with other agents

Precautions:

The precautions normally observed with DIURIL or reserpine apply to DIUPRES. Additional information on DIUPRES is available to physicians on request.

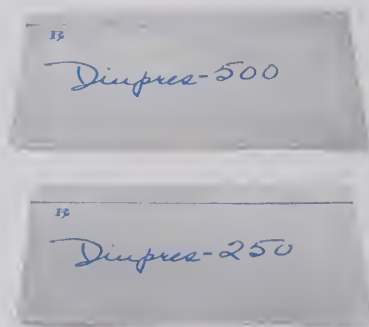
Recommended dosage range:

DIUPRES-500—one tablet one to three times a day.

DIUPRES-250—one tablet one to four times a day.

If necessary, other agents may be added.

If the patient is receiving ganglion blocking agents or hydralazine, their dosage should be cut by 50 per cent when DIUPRES is added.



DIUPRES-500

500 mg. DIURIL (chlorothiazide), 0.125 mg. reserpine.
Bottles of 100, 1000.

DIUPRES-250

250 mg. DIURIL (chlorothiazide), 0.125 mg. reserpine.
Bottles of 100, 1000.

the first "wide range" antihypertensive

DIUPRES

DIURIL[®] WITH RESERPINE

1. Rochelle, J. B., III, Bullock, A. C., and Ford, R. V.: Potentiation of antihypertensive therapy by use of chlorothiazide, *J.A.M.A.* 168:410, Sept. 27, 1958. 2. Freis, E. D., Wanko, A., Wilson, I. M., and Parrish, A. E.: Treatment of essential hypertension with chlorothiazide (Diuril), *J.A.M.A.* 166:137, Jan. 11, 1958. 3. Freis, E. D.: Treatment of hypertension. (Presented at the Annual Meeting of Southern Medical Association, Nov. 13, 1957.) 4. Moyer, J. H., Dennis, E., and Ford, R.: Drug therapy (Rauwolfia) of hypertension, *A.M.A. Arch. Int. Med.* 96:530, Oct. 1955. 5. Perera, G. A.: Edema and congestive failure related to administration of rauwolfia serpentina, *J.A.M.A.* 159:439, Oct. 1, 1955. 6. Wilkins, R. W.: Precautions in use of antihypertensive drugs, including chlorothiazide, *J.A.M.A.* 167:801, June 14, 1958.



MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

*DIUPRES and DIURIL (chlorothiazide) are trademarks of Merck & Co., Inc.

you were to examine these patients



could you
detect
the asthmatic on
Medrol?

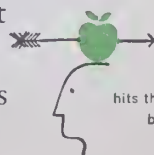
Probably not. Not without a history.

First, because he's more than likely symptom-free.

Second, because he shows none of the disturbing changes in appearance, behavior or metabolism sometimes associated with corticotherapy.

Even your practiced clinical eye would find it difficult to spot someone else's Medrol patient.

But in your own patients, you could see the advantages of Medrol right away. Why not try it?

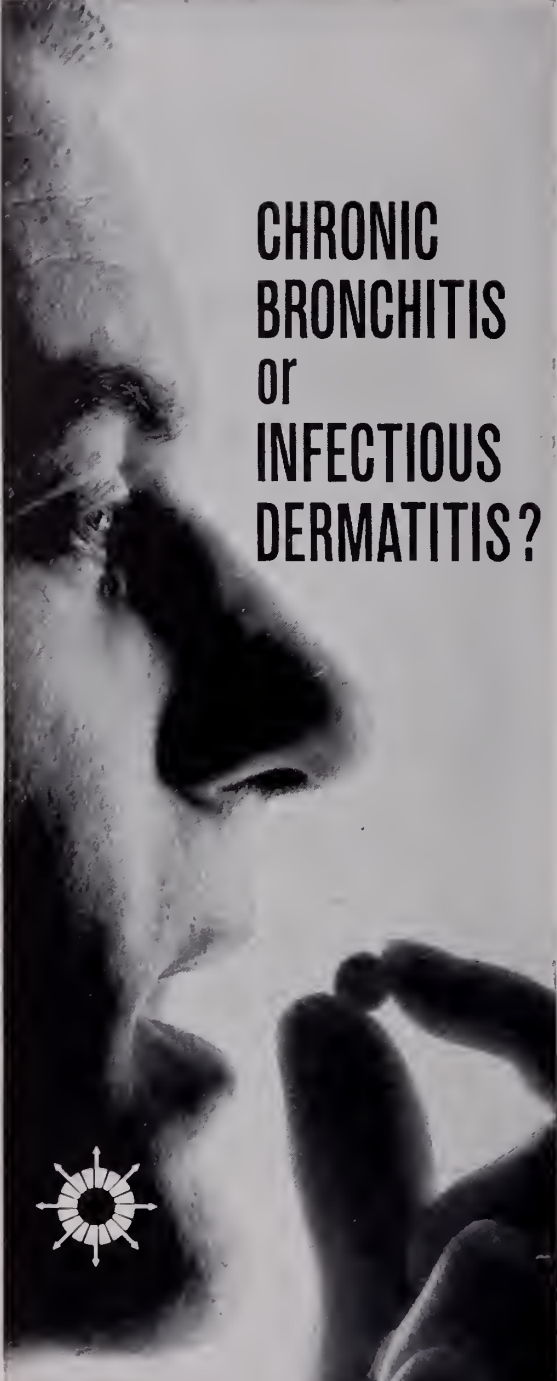


Medrol
hits the **disease**,
but spares the
patient

Upjohn

Upjohn Company, Kalamazoo, Michigan

*TRADEMARK, REG. U. S. PAT. OFF. — METHYLPREDNISOLONE, UPJOHN



CHRONIC BRONCHITIS or INFECTIOUS DERMATITIS?



ACCELERATE THE
RECOVERY
PROCESS WITH

VARIDASE **BUCCAL** TABLETS

STREPTOKINASE-STREPTODORNASE LEDERLE

*Reg. U. S. Pat. Off.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY,
Pearl River, New York

JOHN G. MERKEL & SONS

Physicians—Hospital—

Laboratory—Invalid Supplies

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Wilmington, Delaware

Physicians' and Surgeons' PROFESSIONAL Liability Insurance

Provides Complete Malpractice Protection,
Avoids Unpleasant Situations By Immediate
Thorough Investigation And Saves You The
High Costs Of Litigation.

*The Only Plan Which Is Officially Sponsored
By Your Local Medical Society*

The New Castle County Medical Society
The Kent County Medical Society
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DuPont Bldg. 10th & Orange Sts.

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If it's insurable we can insure it

new

Tao*

(brand of triacetyloleandomycin with glucoSAMine)
Capsules / Oral Suspension

designed
for
effective
control of
common
gram-
positive
infections



NEW YORK 17, N. Y.

Division, Chas. Pfizer & Co., Inc.

SCIENCE FOR
THE WORLD'S
WELL-BEING

TRADEMARK

effective . . .

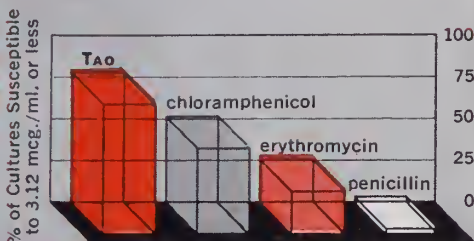
CLINICAL
RESULTS

	adults	children	all Staph Infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were *Staph. aureus* and *Staph. albus*. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, *Hemophilus influenzae*.

even
against
resistant
staph^{1,2...}

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.¹

well
tolerated . . .

REACTIONS:

(a) adults

Total—9.2%
(20 out of 217)
Skin rash—1.4%
(3 out of 217)
Gastrointestinal—
7.8% (17 out of 217)

(b) children

Total—0.6%
(1 out of 167)
Skin rash—none
Gastrointestinal—
0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus . . .

stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective.

Since Tao is therapeutically stable in gastric acid, it may be administered at any time, without regard to meals.

Supplied: Tao Capsules—250 mg. and 125 mg.; bottles of 60. Tao for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 476.

IN OFFICE SURGERY

ELECTIVE AND TRAUMATIC

*use XYLOCAINE first...
as a local anesthetic
or a topical anesthetic*

SWAB  SPRAY  INFILTRATION  NERVE BLOCK



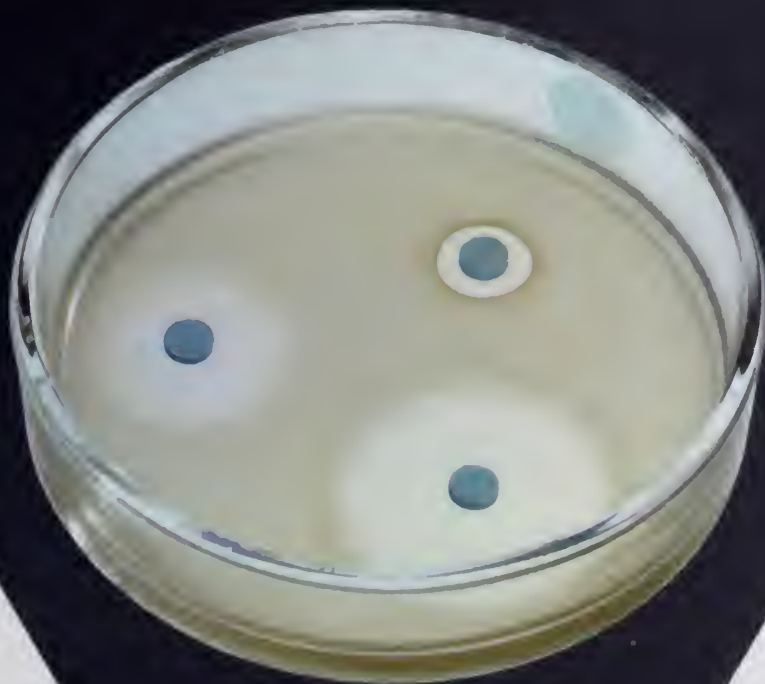
Xylocaine HCl solution, the versatile anesthetic for general office surgery, relieves pain promptly and effectively with adequate duration of anesthesia. It is safe and predictable. Local tissue reactions and systemic side effects are rare. Supplied in 20 cc. and 50 cc. vials; 0.5%, 1% and 2% without epinephrine and with epinephrine 1:100,000; also in 2 cc. ampules; 2% without epinephrine and with epinephrine 1:100,000.

XYLOCAINE[®] HCl SOLUTION
(brand of lidocaine*)

 Astra Pharmaceutical Products, Inc., Worcester 6, Mass., U.S.A.



*U.S. PAT. NO. 2,441,498 MADE IN U.S.A.



*for
the control
of all
coccal
infections*

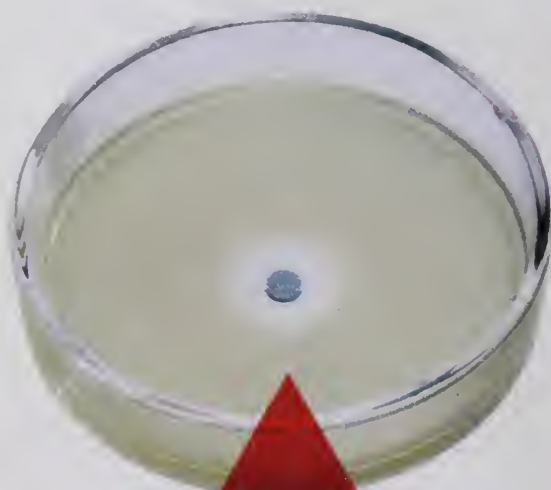
abbott's antibiotic triad



Erythrocin[®]

stearate

(Erythromycin Stearate, Abbott)



*against
staph-, strep-
and
pneumococci*

indications:

In infections caused by staphylococci, streptococci (including enterococci) and pneumococci. Also, against organisms that have become resistant to other antibiotics. ERYTHROCIN should be used where patients are allergic to penicillin or other antibacterials.

dosage:

Usual adult dose is 250 mg. every six hours; for severe infections, usual dose is 500 mg. every six hours. Child's dose may be reduced in proportion to body weight.

supplied:

In bottles of 25 and 100 Filmtabs (representing 100 and 250 mg. of ERYTHROCIN activity). Also, in cinnamon-flavored oral suspension; 75-cc. bottles. Each 5-cc. teaspoonful represents 100 mg. of ERYTHROCIN activity.

® Filmtab — Film-sealed tablets, Abbott; pat. applied for.



SAFETY FIRST

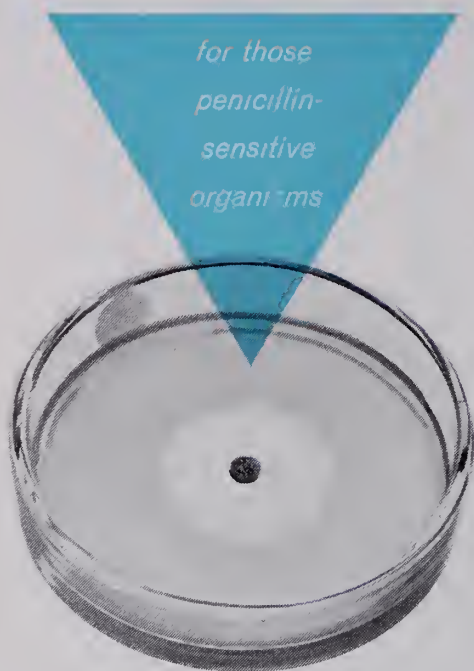
in
antibiotic
therapy

*remarkable effectiveness
against the cocci—
plus a safety record
unmatched in systemic
antibiotic therapy*

Now, after more than six years of extensive use, there has not been a single serious reaction to ERYTHROCIN. Additionally, the often-met problem of resistance has remained unusually low with ERYTHROCIN.

Therapeutically, you'll find ERYTHROCIN highly effective against the majority of coccal organisms. Where severe viral attacks occur, ERYTHROCIN may well be the weapon to counteract those dangerous complications.

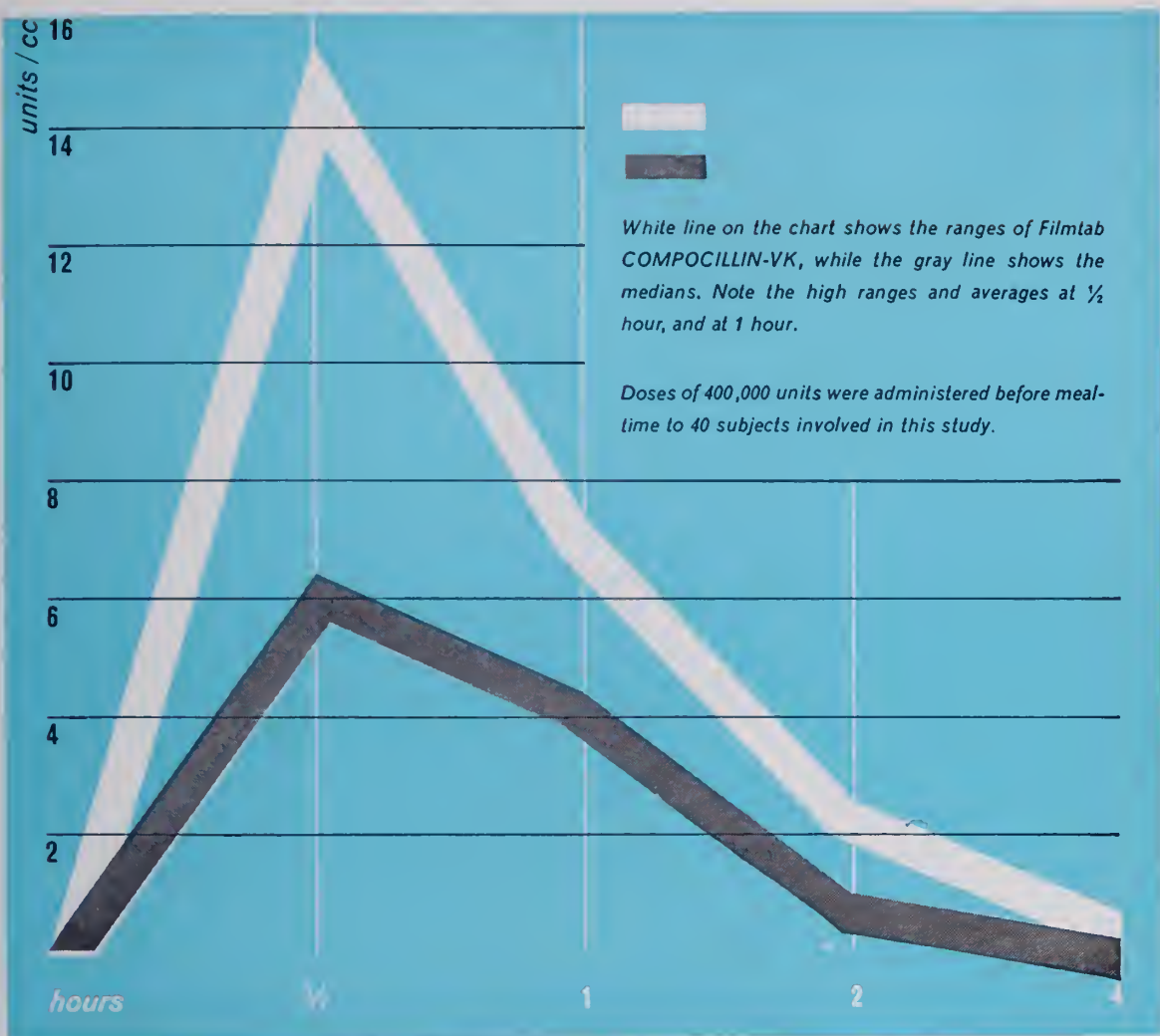
Abbott



the ^{higher} blood levels of

COMPOCILLIN-VK

Potassium
Penicillin V



NOW, IN BOTH FILMTAB AND ORAL SOLUTION, patients get high penicillin V blood levels with COMPOCILLIN-VK. Note the chart. Concentrations are three times higher than an equivalent dose of potassium penicillin G.

COMPOCILLIN-VK is indicated whenever you desire oral penicillin therapy. In severe infections, oral penicillin should be supplemented by parenteral therapy to obtain the maximum therapeutic response.

Indications

Against all organisms sensitive to oral penicillin therapy. For prophylaxis and treatment of complications in viral conditions. And as a prophylaxis in rheumatic fever and rheumatic heart disease.

Dosage

Depending on the severity of the infection, the usual adult dose is 125 to 250 mg. (200,000 to 400,000 units)

every four to six hours. For children, dosage may be reduced in proportion to body weight.

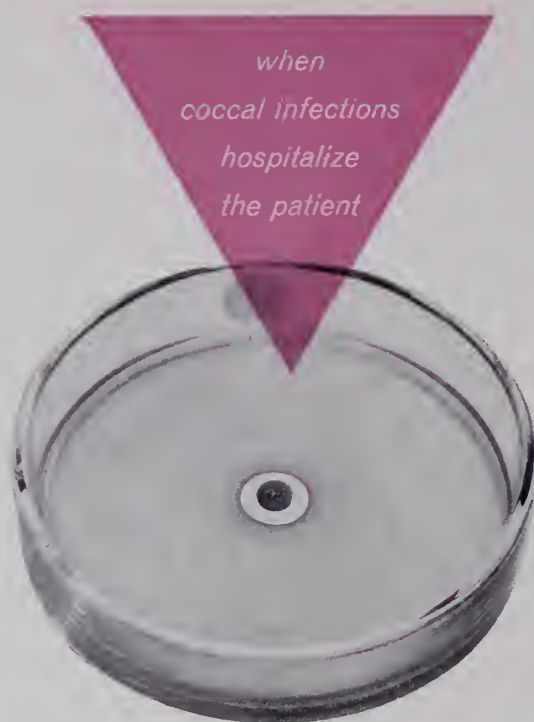
Storing

In Filmtabs, representing 125 mg. (200,000 units) of potassium penicillin V, bottles of 50 and 100. In 250 mg. (400,000 units), bottles of 25 and 100.

For Oral Solution, COMPOCILLIN-VK comes in dry granules for easy reconstitution with water. Cherry-flavored, the granules come in 40-cc. and 80-cc. bottles. Each 5-cc. teaspoon of solution represents 125 mg. (200,000 units) of potassium penicillin V.

COMPOCILLIN-V® Oral Suspension (Ready-Mixed), Hydrabamine Penicillin V, Abbott, comes in 40-cc. and 80-cc. bottles. Each tasty, banana-flavored 5-cc. teaspoonful represents 180 mg. (300,000 units) of penicillin V. At all pharmacies.

Abbott



**the most effective antibiotic
available against staphylococci**

CRYSTALLIZED

SPONTIN[®]

(RISTOCETIN, ABBOTT)

PREPARED FROM PURE CRYSTALS

**Provides Outstanding Clinical Effectiveness Against Coccal
Infections, Including Resistant Staphylococci and Enterococci¹**

Provides Bactericidal Action Against Coccal Infections¹

Provides Successful Short-Term Therapy In Endocarditis²

Now, after just 12 months, SPONTIN has become an outstanding drug of choice against resistant staphylococci, and in other serious coccal infections.

Six papers presented at the Antibiotics Symposium¹ reported the effectiveness of SPONTIN against resistant staphylococcal infections. Clinical responses involved enterococcal endocarditis, staphylococcal pneumonias and staphylococcal bacteremias. Many of these patients were going downhill steadily—in spite of treatment by other antibiotics.

Toxicity? Careful attention to dosage recommendations has practically eliminated toxicity and side effects as serious obstacles to therapy. Also, recent improvements have been made in the manufacture of SPONTIN; the drug is now made from pure crystals. A recent report³ in the Journal of the American Medical Association concluded, "It is our opinion that, if proper precautions are observed, ristocetin is a safe and potent agent to employ in the treatment of staphylococcal infections."

If you do not have the revised literature on this lifesaving antibiotic, please contact your Abbott Representative soon; or write direct to Abbott Laboratories, North Chicago, Illinois.

INDICATIONS: Against a wide range of staphylococcal, streptococcal, pneumococcal and enterococcal infections. A drug of choice for treating serious infections, particularly those caused by organisms that resist all other antibiotics.

DOSAGE: Administered intravenously. In pneumococcal, streptococcal and enterococcal infections, a dosage of 25 mg./Kg. will usually be adequate. Majority of staphylococcal infections will be controlled by 25 to 50 mg./Kg. per day. It is recommended that the daily dosages be divided into two or three equal parts at eight- or 12-hour intervals.

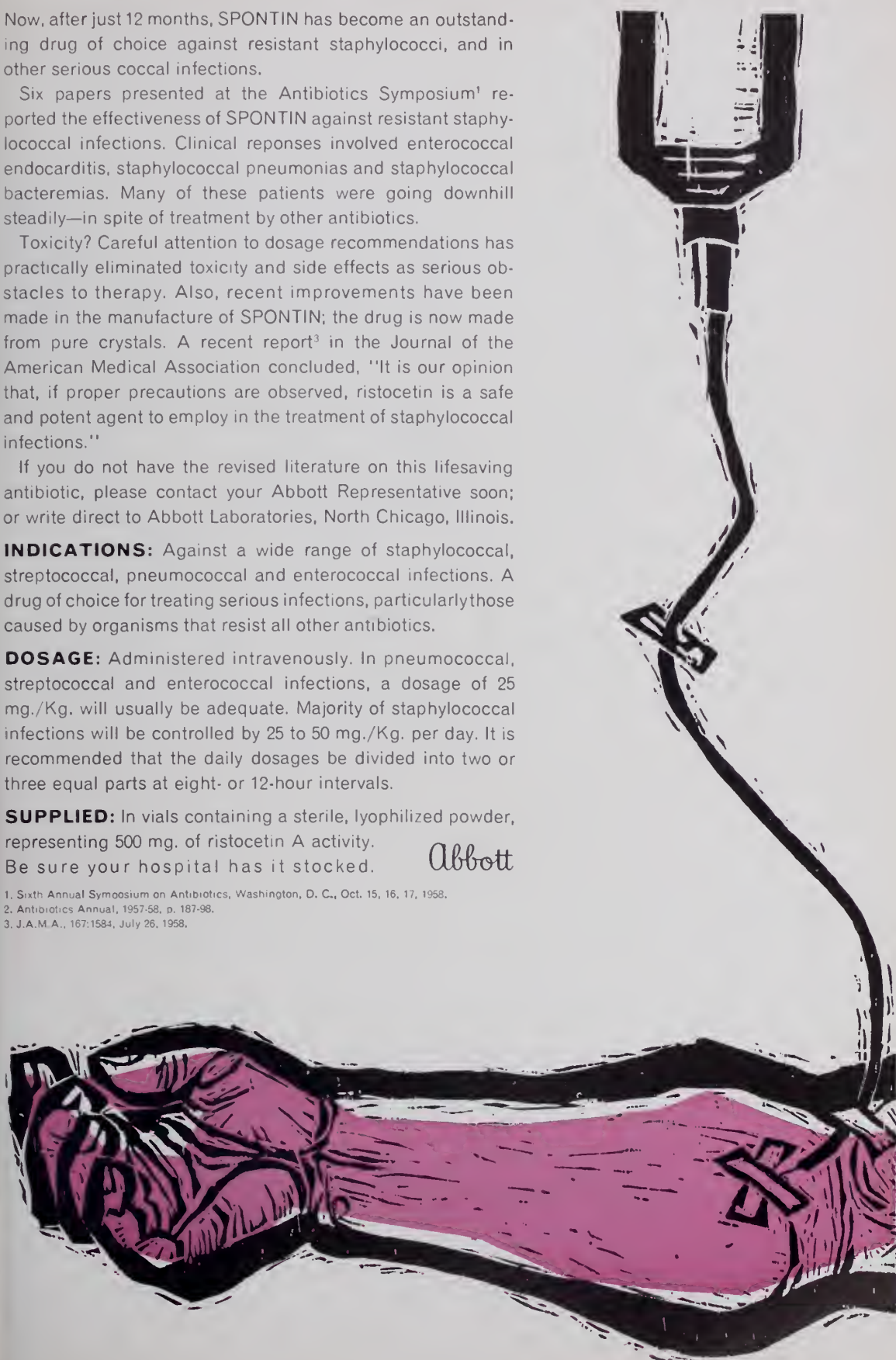
SUPPLIED: In vials containing a sterile, lyophilized powder, representing 500 mg. of ristocetin A activity. Be sure your hospital has it stocked.

Abbott

1. Sixth Annual Symposium on Antibiotics, Washington, D. C., Oct. 15, 16, 17, 1958.

2. Antibiotics Annual, 1957-58, p. 187-98.

3. J.A.M.A., 167:1584, July 26, 1958.



Proven

in over three years of clinical use
in over 600 clinical studies

Specific

FOR RELIEF OF ANXIETY
AND MUSCLE TENSION

Selective

Does not interfere with autonomic function

Does not impair mental efficiency,
motor control, or normal behavior

Has not produced hypotension,
agranulocytosis or jaundice

Miltown[®]

MEPROBAMATE (WALLACE)

Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets.



WALLACE LABORATORIES, New Brunswick, N. J.

now—an antibiotic troche that

STOPS COUGH TOO

The *cough control* provided by homarylamine (a non-narcotic antitussive) approximates that of codeine.

Three antibiotics (bacitracin, tyrothricin, neomycin) act in combination against a wide variety of pathogens—with little danger of side reactions.

The anesthetic-analgesic effect of benzocaine brings *soothing relief* to inflamed tissues of mouth and throat.

PENTAZETS now extend the therapeutic usefulness of convenient troche medication. Each pleasant-tasting PENTAZETS troche acts promptly against the most bothersome aspects of mouth and throat irritations.

PRESCRIBE

Pentazets[®]

antitussive—antibiotic—anesthetic—analgesic troches



MERCK SHARP & DOHME

DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

Dosage: Three to 5 troches daily for 3 to 5 days.

Supplied: In vials of 12.

PENTAZETS is a trademark of Merck & Co., Inc.

**AN AMES
CLINIQUE**

CLINICAL BRIEFS
FOR MODERN PRACTICE

*which patients
with noncalculous
gallbladder
disease
should undergo
surgery?*

Essentially those who are not relieved by a prolonged trial period of medical management.

Source—Lichtenstein, M. E.: GP 16:114 (Oct.) 1957.

*for medical, preoperative,
postoperative management
of biliary disorders*

“therapeutic bile”

**DECHOLIN® and
DECHOLIN SODIUM®**

corrects biliary stasis

Hydrocholeresis with DECHOLIN produces abundant, thin, free-flowing, therapeutic bile. This flushes thickened bile, mucous plugs and debris from the biliary tract.



AMES COMPANY, INC.

Elkhart, Indiana

Ames Company of Canada Ltd.
Toronto



nasal and paranasal congestion and control secondary invaders

Now, a single unique preparation, Trisulfaminic, can provide dramatic relief from congestion, and at the same time protect the patient from secondary bacterial invaders. Often within minutes of the first dose, congestion begins to clear; the patient can breathe again.

Trisulfaminic is particularly valuable for the "almost well" patient who is recovering from influenza but is left with congested nasal and bronchial passages. And for patients with purulent rhinitis, sinusitis or tonsillitis, combination therapy with Trisulfaminic offers a most realistic approach to total treatment.

Oral Decongestant Action. Through the action of Triaminic, nasal patency

is achieved rapidly and dramatically. Adequate ventilation helps eliminate mucus-harbored pathogens. And because Trisulfaminic is administered *orally*, there is no problem of rebound congestion, no pathological change wrought in the nasal mucosa.

Wide-Spectrum Action. Secondary bacterial infections, which are always a threat in upper respiratory involvement, are forestalled by the wide-spectrum effectiveness of triple sulfonamides. This added antibacterial protection makes Trisulfaminic highly useful in treating the debilitated patient who is prone to lingering or frequently recurring colds.

Trisulfaminic *tablets and suspension*

TRIAMINIC PLUS TRIPLE SULFAS

Each Tablet and each 5 ml. teaspoonful of Suspension contains:

Triaminic®	25 mg.
(phenylpropanolamine HCl. 12.5 mg.;	
pheniramine maleate	6.25 mg.;
pyrilamine maleate	6.25 mg.)
Trisulfapyrimidines U.S.P.	0.5 Gm.

Dosage: Adults—2 to 4 tablets or teaspoonfuls initially, followed by 2 tablets or teaspoonfuls every 4 to 6 hours until the patient has been afebrile for 3 days. Children 8 to 12 years—2 tablets or teaspoonfuls initially, followed by 1 tablet or teaspoonful every 6 hours. Younger children—dosage in proportion.

THE RATIONALE
FOR THE
USE OF VITAMINS
IN
FORESTALLING
INFECTIONS

Many clinicians believe that good nutrition plays a significant role in preventing bacterial infections, and that immunity depends on adequate vitamin levels. Tisdall¹ states that "a low intake of a number of vitamins, a low intake of minerals, and a change in the quality of protein can all lower resistance to infection."

Other studies show the important role of the B vitamins in antibody formation. Thus, *Nutrition Reviews*² reports: "Present evidence indicates that certain B vitamins, notably pyridoxine, pantothenic acid and folacin, play a significant role in antibody synthesis." According to Pollack and Halpern,³ "Under-nutrition leads to increased susceptibility to infection and decreased resistance to established disease." And "vitamin deficiency states also may adversely influence circulating antibodies."

Halpern⁴ reports that "good nutrition is important for optimal resistance to infection, for a superior tissue capability to cope with disease and injury, and for maximum antibody production . . . nutrition participates in the prophylaxis against most acute infections . . ."

And while MacBryde⁵ feels that evidence is lacking to support the view that a higher than normal intake of vitamins will improve resistance to infection, he also states: "Restoration of nutrition to normal exerts a favorable influence on practically all disease conditions . . ."

Often the outcome will depend more upon the correction of the malnutrition than upon any therapy directed toward the malady."

THERAGRAN

SQUIBB VITAMINS FOR THERAPY

now expanded to include additional essential vitamins—

and at no extra cost to your patients

Each Theragran Capsule supplies:

Vitamin A	25,000 U.S.P. units
Vitamin D	1,000 U.S.P. units
Thiamine Mononitrate	10 mg.
Riboflavin	10 mg.
Niacinamide	100 mg.
Ascorbic Acid	200 mg.
Pyridoxine Hydrochloride	5 mg.
Calcium Pantothenate	20 mg.
Vitamin B ₁₂ Activity Concentrate	5 mcg.

Also Available: THERAGRAN Liquid, bottles of 4 ounces; THERAGRAN Junior bottles of 30 and 100 capsules; and THERAGRAN-M (Squibb Vitamin-Minerals for Therapy), bottles of 30, 60, 100 and 1,000 capsule-shaped tablets.

Dosage: 1 or more capsules daily as indicated.

Supply: Family Packs of 180. Bottles of 30, 60, 100 and 1,000.

References: 1. Tisdall, F. F.: *Clinical Nutrition*, ed. by Joliffe, N.; Tisdall, F. F., and Cannon, P. R.: Paul B. Hoeber, Inc., New York, 1950, p. 748. 2. *Nutrition Reviews*, 15:47, (Feb.) 1957. 3. Pollack, H., and Halpern, S. L.: *Therapeutic Nutrition*, National Academy of Sciences and National Research Council, Washington, D. C., 1952, p. 18. 4. Halpern, S. L.: *Ann. N. Y. Acad. Science* 63:147, (Oct, 28) 1955. 5. MacBryde, C. N.: *Signs and Symptoms*, J. B. Lippincott Co., Phila., 3rd Ed. 1957, p. 818.



Squibb Quality—The Priceless Ingredient

Low Dosage **KYNEX*** for G.U. Infections

Sulfamethoxypyridazine Lederle



Unusual Antibacterial and Anti-infective Properties—More soluble in acid urine¹ . . . higher and better sustained plasma levels than any other known and useful antibacterial sulfonamide.²

Unprecedented Low Dosage—Less sulfa for the kidney to cope with . . . yet fully effective. A single daily dose of 0.5 to 1.0 Gm. maintains higher plasma levels than 4 to 6 Gm. daily of other sulfonamides—a notable asset in prolonged therapy.²

Dosage: The recommended adult dose is 1 Gm. (2 tablets) the first day, followed by 0.5 Gm. (1 tablet) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours.

KYNEX—WHEREVER SULFA THERAPY IS INDICATED

Tablets: Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

Syrup: Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

references:

1. Griebble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958.
2. Editorial: *New England J. Med.* 258:48-49, 1958.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

*Reg. U. S. Pat. Off.



IN URTICARIA AND PRURITUS

VISTARIL*

HYDROXYZINE PAMOATE

**A PSYCHOTHERAPEUTIC ANTIHISTAMINE**

(as designated by A.M.A. Council on Drugs, 1958)

SPECIFIC ANTIHISTAMINIC ACTION in the treatment of a variety of skin disorders commonly seen in your practice.

"While some of the tranquilizers are only partially effective as far as antiallergic activities are concerned... [hydroxyzine] has been found, by comparison, to be the most potent thus far..."¹

"The most striking results were seen in those patients with chronic urticaria of undetermined etiology."²

PLUS

PSYCHOTHERAPEUTIC POTENCY for the relief of anxiety and tension.

The psychotherapeutic effectiveness of hydroxyzine (VISTARIL) was confirmed in a series of 479 patients suffering from a wide variety of dermatoses, including atopic dermatitis, neurodermatitis, psoriasis, lichen planus, nummular eczema, dyshidrosis, pruritus ani and vulvae, and rosacea. "Adverse reactions were minimal."³

RECOMMENDED ORAL DOSAGE: 50 mg. q.i.d. initially; adjust according to individual response.

VISTARIL Capsules: 25 mg., 50 mg., 100 mg.

VISTARIL Parenteral Solution: 10 cc. vials and 2 cc. Steraject® Cartridges. Each cc. contains 25 mg. hydroxyzine (as the HCl).

REFERENCES:

1. Eisenberg, B. C.: Clinical Medicine 5:897-904 (July) 1958.
2. Feinberg, A. R., et al.: J. Allergy 29:358 (July) 1958.
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Pfizer Science for the world's well-being

PFIZER LABORATORIES Division, Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y.

*Trademark



Exactly how does new Halodrin* restore the “premenopausal prime” in postmenopausal women?

Webster defines “prime” as the period of greatest health, strength, and beauty. In a woman, these are the childbearing years between puberty and menopause—the years when her hormone production is highest.

The inevitable reduction in this hormone production as she enters the menopause often results in physical discomfort in the form of hot flushes, nervousness, insomnia, or a multiplicity of other symptoms with which you are familiar. Superimposed on this physical picture is the psychic trauma brought on by this unavoidable evidence of aging. The thing that brings her to a physician is simply that she “feels bad.”

You can't make her 35 again—but the odds are good that you can make her feel like it! The secret is a combination of reassurance and hormones. The exact form and amount of the former defy objective analysis, but the latter can now be provided with scientific precision. Reduced to essentials, here is the explanation of exactly how hormones—in the form of Upjohn's new Halodrin—restore the “premenopausal prime.”

The normal premenopausal woman excretes estrogens in the urine in the form of estradiol, estrone, and estriol, in an approximate 28-day average ratio of 39:15:46. Starting with this urinary excretion of estrogens, it is possible to calculate backwards and estimate the amount of estradiol that must have been secreted endogenously in order to produce these urinary levels. This is possible because the proportion of estrogens which appears in the urine following parenteral administration has been established in castrated women.

On this basis, the average endogenous output of estrogens is about 160 micrograms per day during a menstrual cycle, and 80 micrograms per day in postmenopausal women (see chart opposite). Therefore, the restoration of the “premenopausal prime” in the postmenopausal woman requires the replacement of approximately the equivalent of the 80 micrograms of estradiol per day that she no longer secretes endogenously.

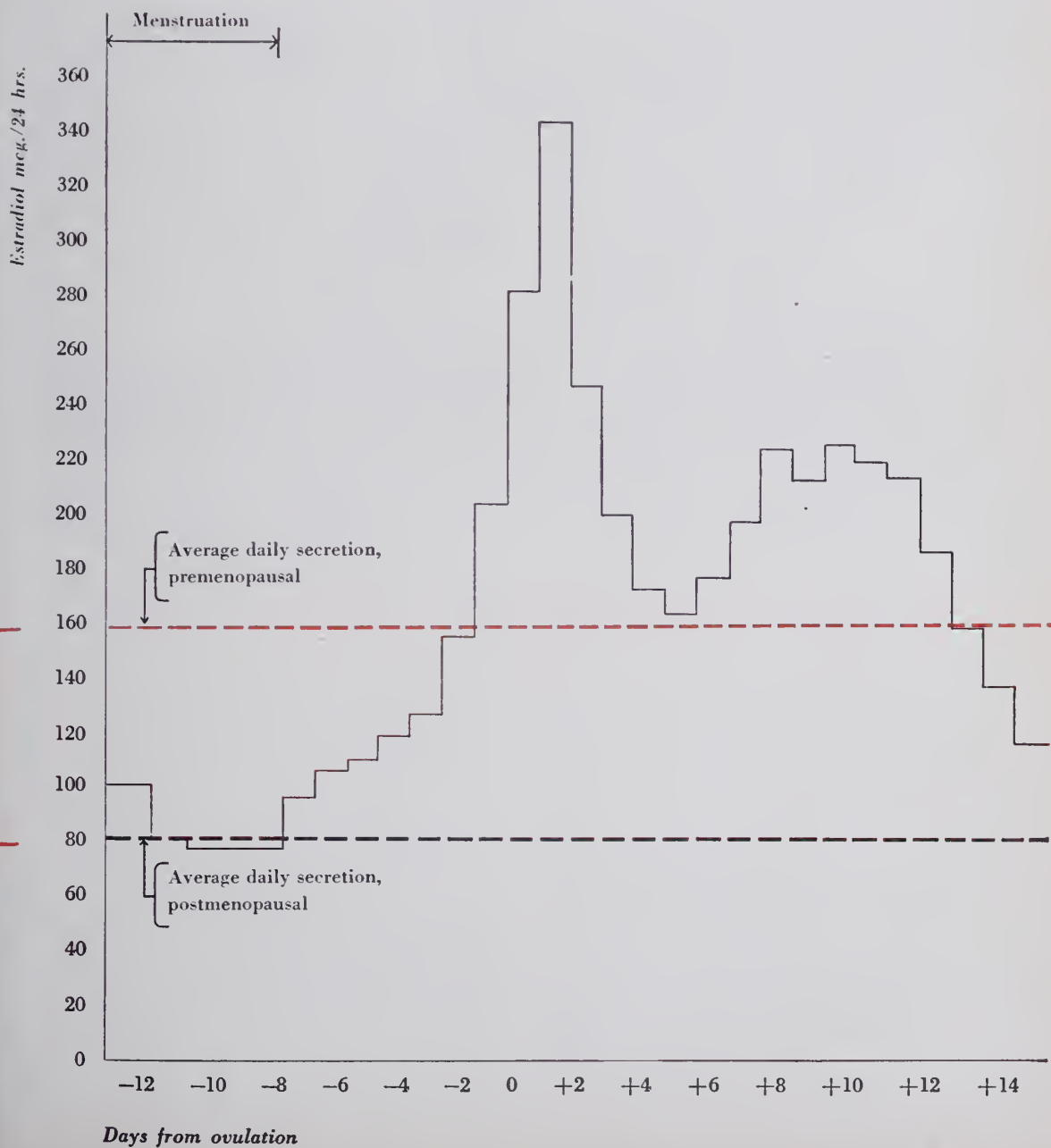
Oral ethinyl estradiol is about 2 to 2½ times as potent as parenteral estradiol. Therefore, the replacement of 80 micrograms of endogenous estradiol production per day is accomplished by the oral administration of 32 to 40 micrograms of ethinyl estradiol per day.

Each Halodrin tablet contains 20 micrograms of ethinyl estradiol, which means that the recommended dosage of 2 tablets per day provides 40 micrograms of ethinyl estradiol. This offsets the loss of 80 micrograms of endogenous estradiol production in the menopausal woman; i.e., restores the “premenopausal prime.”

Each Halodrin tablet also contains 1 mg. of Upjohn-developed Halotestin* (fluoxymesterone)—the most potent oral androgen known. The primary purpose is to “buffer” the ethinyl estradiol just enough to prevent breakthrough bleeding, which is obviously undesirable in the menopause. It also exerts other beneficial hormonal effects, one of which, in common with ethinyl estradiol, is a powerful anabolic action so desirable in patients of advanced years.

Upjohn

Endogenous estrogen secretion (mcg./24 hours)
(calculated from average 24-hour urinary excretion
of estradiol, estrone, and estriol)





FOR A
QUICK
COMEBACK
V-CILLIN[®] K

provides dependable, fast, effective therapy

dependable action

because all patients show therapeutic blood concentrations of penicillin with recommended dosages.

quick deployment

of the bacteria-destroying antibiotic. Within five to fifteen minutes after administration, therapeutic concentrations appear in the general circulation.

higher blood levels

than with any other penicillin given

orally. Bactericidal concentrations are assured. Infections resolve rapidly.

Dosage: 125 or 250 mg. three times daily.

Supplied: Tablets, scored, of 125 and 250 mg. (200,000 and 400,000 units).

New V-Cillin K, Pediatric: In bottles of 40 and 80 cc. Each 5-cc. teaspoonful provides 125 mg. V-Cillin K.

V-Cillin[®] K (penicillin V potassium, Lilly)

THE HEART IN LEUKEMIA

O. J. POLLAK, M.D., PH.D.**

Investigation into the cause of thrombosis and/or hemorrhage often leads to diagnosis of leukemia. Blood vessels may become involved in the pathogenesis of leukemia on the basis of disturbed blood clotting. The heart, too, can be affected by leukemia. This fact is rarely appreciated although pertinent references can be found in medical writings. Several patients with clinical or electrocardiographic evidence of myocardial and/or coronary artery disease in whom leukemia was diagnosed during life or after death were recently encountered. They served as reminders that the heart may be impaired in leukemia in several ways. Four patients were selected as a basis for discussion.

CASE I

A Negro, aged 18 years, presented with symptoms of precordial oppression, arrhythmia, dyspnea and fatigue interpreted as rheumatic heart disease. His condition responded to bed rest and medication with salicylates but the course was recurrent. One and one-half years after his first visit to a physician palpitation, tachycardia and arrhythmia warranted an electrocardiogram. Changes in the QRS complex, a deep S₁, and a high R in V₁ were compatible with the diagnosis of rheumatic myocarditis. A month later the patient was hospitalized with pain in the left leg, swelling of the leg, profuse bleeding from the intestines and anemia. These symptoms had an acute onset four days before admission. Shortly afterward the patient developed abdominal pain, nausea and vomiting. He became weak

and short of breath. He twice vomited large amounts of blood, a total of about 500 ml. Temperature was 94°F, respiration rate was 34 and pulse rate was 95 per minute. Blood pressure dropped to 68/40 mm. The patient died within four hours after admission.

Pertinent laboratory findings were: Hematocrit, 24%; hemoglobin, 8.85 gm.; white blood cells, 65,800 per cu. mm.; 2 myelocytes, 1 neutrophilic and 2 eosinophilic segmented cells and 16% lymphocytes. The leukocytes had many toxic granules. The red cells were hypochromic, target cells were present and 1 normoblast was found per 100 white blood cells.

The chief gross necropsy findings were: splenomegaly; hepatomegaly; lymphadenopathy; nodules in spleen, liver, and kidneys; severe pulmonary edema and thrombosis of the left femoral vein. Microscopically, there were massive leukemic infiltrates in spleen, liver, lymph nodes, adrenals, kidneys, in the wall of the small and large intestine and in the myocardium. There was also marked pulmonary edema, pleural and intestinal mucosal petechiae, femoral vein thrombosis and myelofibrosis. The infiltrate between the myofibrils was severe and was seen in sections from various parts of the heart. The character of the cellular infiltrate confirmed the diagnosis of granulocytic leukemia. (Fig. 1)

Comment: There was no evidence of rheumatoid carditis. Apparently leukemic myocardial infiltrates simulated rheumatic myocarditis. Terminal thrombosis and hemorrhages were caused by fulminant exacerbation of a chronic aleukemic granulocytic leukemia.

*Supported by research grant H-2534 (C-1) of the National Heart Institute, N.I.H., USPHS.

**Pathologist, Kent General, Milford Memorial, and Beebe Hospitals; Dover, Milford and Lewes, Delaware.

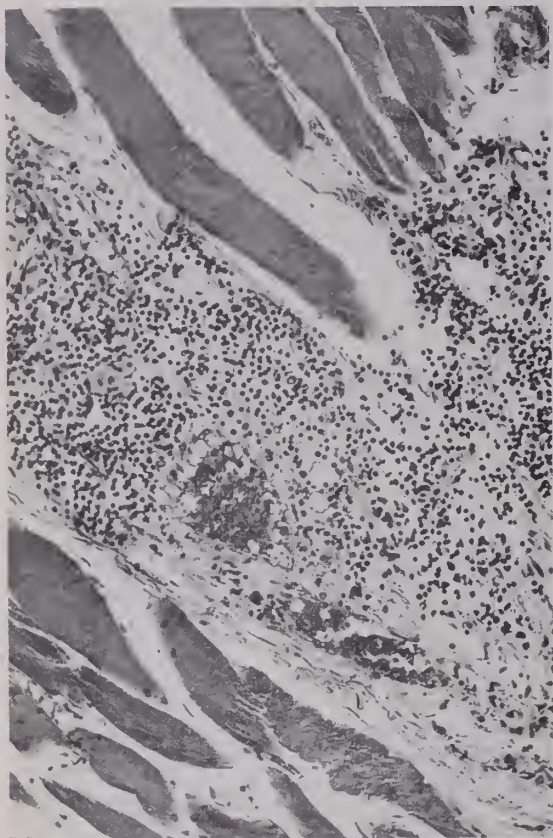


FIGURE 1A (TO: CASE 1)
Leukemic infiltrate of myocardium (x 165)

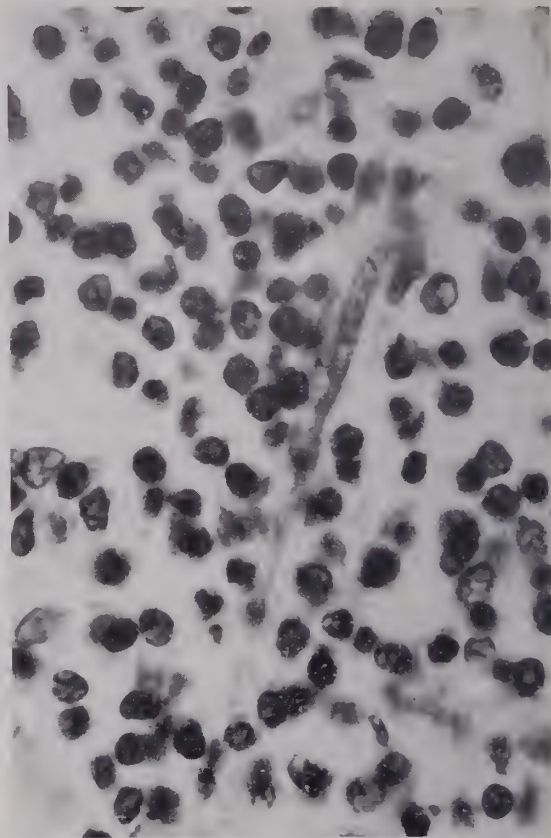


FIGURE 1B (TO: CASE 1)
Myelocytic infiltrate — heart (x 1,200)

CASE II

A white man, 74 years old, had to be hospitalized twice within one-half year because of progressive anemia, painful cough and, on second admission, also because of recurrent epistaxis and tarry stools. The patient had no symptoms of heart disease.

On first admission pertinent laboratory findings were: hematocrit, 23%; hemoglobin, 11 gm.; white blood cells, 16,000 per cu. mm.; 4 myelocytes, 3 band forms, 60 neutrophilic segmented cells and 33% lymphocytes. On second hospitalization, four months after the first, the findings were: hematocrit, 17%; hemoglobin, 5.4 gm.; white blood cells, 12,400 per cu. mm.; 4 myelocytes, 3 metamyelocytes, 7 band forms, 42 neutrophilic, 1 basophilic and 2 eosinophilic segmented cells, 40 lymphocytes and 2% monocytes. After six transfusions of 500 ml. whole blood each, the hematocrit rose gradually to 22% and the hemoglobin value to 7.6 gm. The number of myelocytes

exceeded 50% of all nucleated cells in the sternal bone marrow.

The diagnosis of chronic myelocytic leukemia was confirmed by necropsy. Pertinent gross findings were splenomegaly, hepatomegaly and lymphadenopathy. Nodules were seen in the spleen, liver and kidneys. The spleen was about six times the normal size and the liver about twice. The gross appearance of the liver was that of cirrhosis. The surface was coarse nodular, greenish discolored, the architecture was also nodular and the consistency was hard. Microscopically, massive myelocytic infiltrates were seen in the spleen, liver, kidneys, adrenals and bone marrow. Infiltration of the myocardium was much less extensive than that of the other organs. (Fig. 2)

Comment: Apparently leukemic myocardial infiltration was not extensive enough to cause clinical manifestations. In this patient with chronic aleukemic myelocytic leukemia, death was due to anemia and hepatic failure.

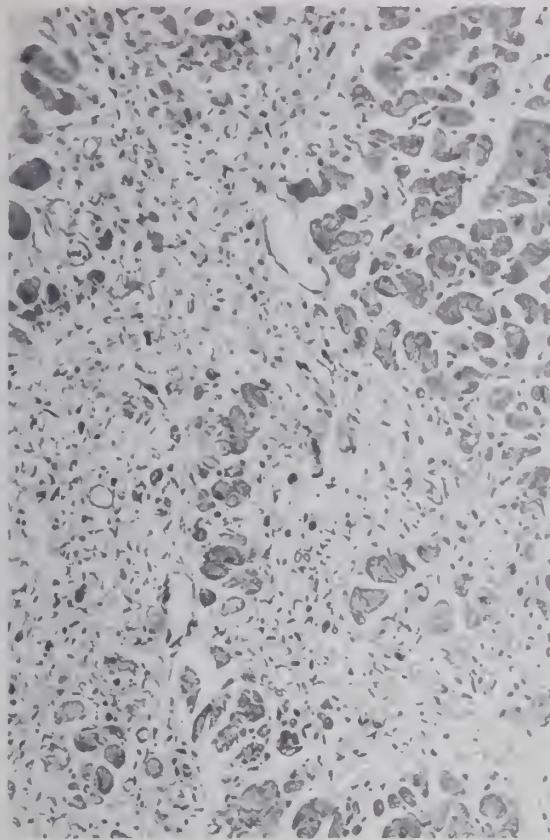


FIGURE 2A (To: CASE 2)
Leukemic infiltrate of myocardium (x 165)

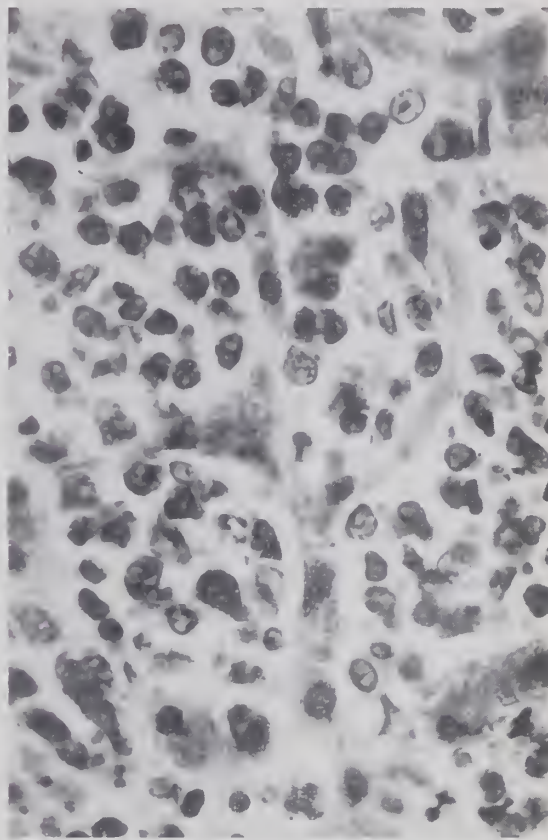


FIGURE 2B (To: CASE 2)
Myelocytic infiltrate — liver (x 1,200)

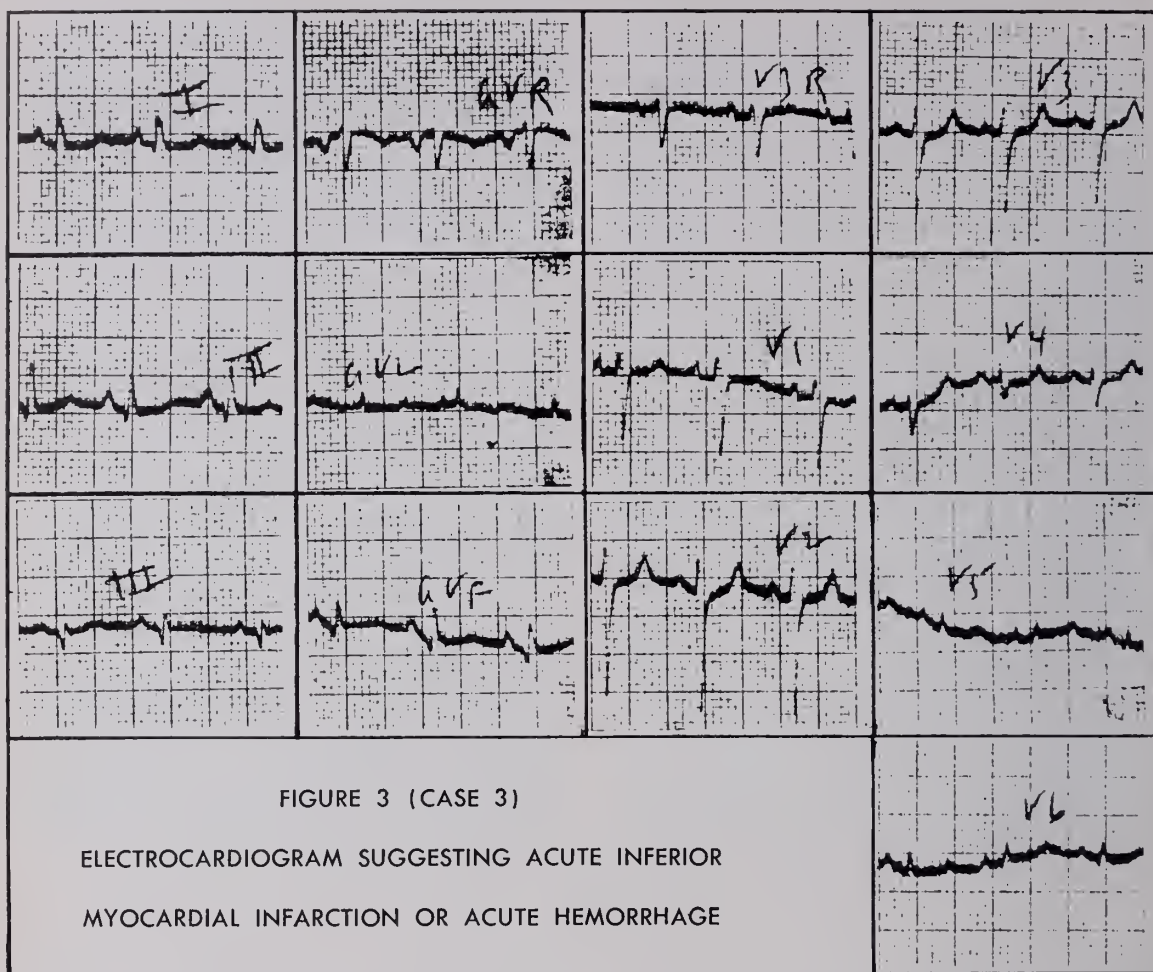
CASE III

A 58-year old white man was admitted to the hospital because of progressive weakness, fatigue, weight loss over a period of three months and fullness in the hypochondrium. Clinical and radiologic examination disclosed splenomegaly and cholelithiasis. Laboratory data were: hematocrit, 38%; hemoglobin, 10 gm.; white blood cells, 5,200; and 2 days later, 3,000 per cu. mm.; 12 band forms, 80 neutrophilic segmented cells, and 8% lymphocytes; Coombs' test, negative; hemolysis starting at 34 and ending at 30% concentration of sodium chloride solution; prothrombin time, 20 seconds; bleeding time, 3 minutes; clotting time, 20 minutes. Bone marrow examination lead to diagnosis of acute aleukemic myelocytic leukemia.

On admission, the patient's blood pressure was 130 70 mm. On the sixth day the pressure began to decrease rapidly. It reached 68 50 mm. before death. An electrocardiogram was obtained less than 3 hours before death: Normal sinus rhythm,

rate of 112 per minute; P-R, 0.12 seconds; QRS, 0.08 seconds; P normal, S-T normal, T flattened. Amplitude of QRS low in I-III, small complexes in V_{4-6} , Q present in III, aVF, $V_{3,6}$. The findings were interpreted as possible early manifestations of an acute anterior infarction or as effect of an acute hemorrhage. (Fig. 3)

At necropsy about 2,000 ml. of liquid blood was found in the abdominal cavity. The spleen measured 40 by 30 by 20 cm. and had a 6 cm. long rent. Several bright red infarcts were present in the spleen. The main splenic artery was occluded by a thrombus. The liver measured 50 by 40 by 15 cm. Nodules were seen in the spleen and liver. Peritoneal and retroperitoneal lymph nodes were enlarged and a deep red color. The bone marrow was voluminous and bright red. The gall bladder contained multiple pigmented, faceted calculi. Microscopically, leukemic infiltrates of considerable extent were seen in the spleen, liver, lymph nodes and bone marrow. There were



no leukemic infiltrates in multiple sections from the myocardium. A fibrous scar after infarction was present in the anterior wall involving the intraventricular septum.

Comment: Chronic aleukemic myelocytic leukemia led to splenic artery thrombosis, splenic infarction and rupture with fatal hemorrhage. Electrocardiographic changes were caused by acute hemorrhage rather than by myocardial infarction.

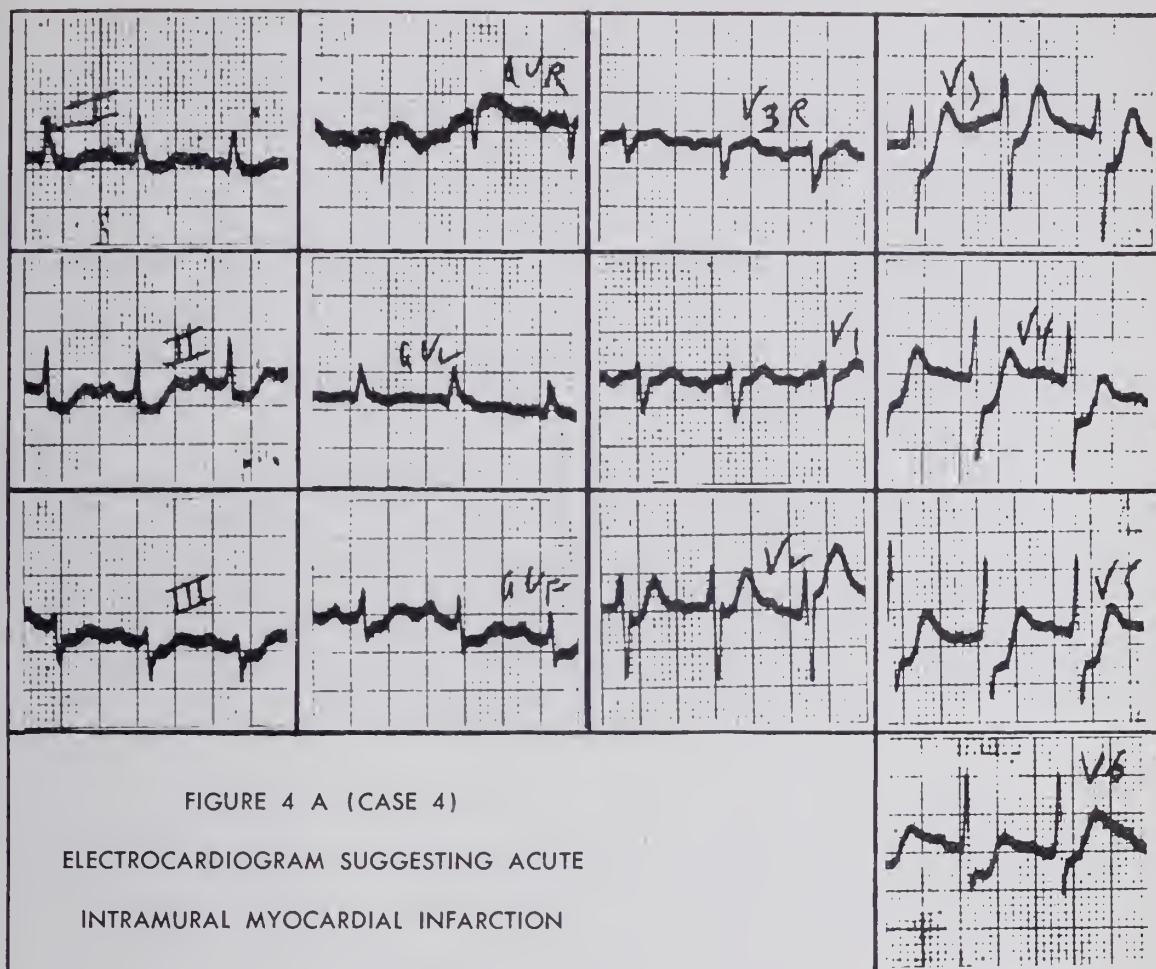
CASE IV

A 70-year old white man was under observation for four and one-half months. For about a year before first hospitalization he had anginal attacks which became more frequent. He was admitted because of acute substernal pain, dyspnea and weakness. There was cardiac enlargement and slight edema of the legs. The heart rate was 120 per minute and blood pressure was 118/68

mm. The initial laboratory findings were: hemoglobin, 4.6 gm.; red blood cells, 1,500,000 per cu. mm.; white blood cells, 22,400 per cu. mm.; 11 myelocytes, 6 metamyelocytes, 28 band forms, 21 neutrophilic segmented cells, 29 lymphocytes and 5% monocytes. Five normoblasts were counted per 100 white cells. Diagnosis of chronic myelocytic leukemia was established by bone marrow study.

The first electrocardiogram (Fig. 4-A) obtained on admission pointed to "acute intramural myocardial infarction". There was sinus tachycardia of 120 per minute; P-R, 0.18 seconds; QRS, 0.08 seconds; P generally low, notched in V leads; S-T depressed in II, III, aVF, V₂₋₆; T low in all leads.

Nine days later (Fig. 4-B) the tracings were improved so markedly that diagnosis was corrected to "myocardial abnormality;



possible recent infarction." The rate was 98 per minute; P generally low; QRS of low amplitude in I-III; S-T slightly depressed in I, II, aVF, V₄₋₆; T flattened in I, II, aVF. At this date the hemoglobin was 7.8 gm. after transfusion of 1,500 ml. of whole blood.

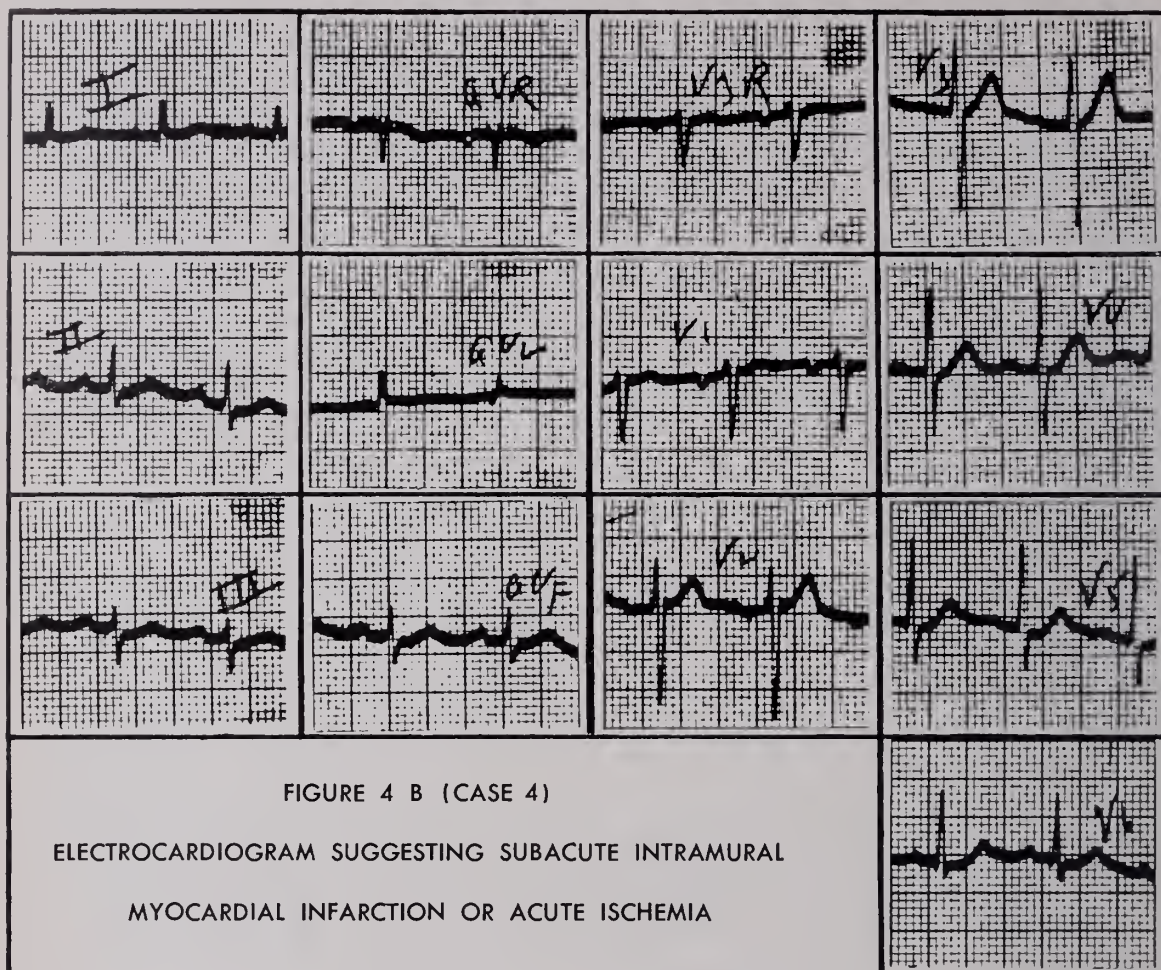
Six days later, or 15 days after the first electrocardiogram, there was further improvement in the tracings (Fig. 4-C). The rate was 93 per minute; P low notched in III, aVF, V₄₋₆; QRS were of better amplitude and less deformed than before; S-T normal; T in V leads tended to be tall and symmetric. On this date, after three more whole blood transfusions, the hemoglobin was 9 gm. It became evident that electrocardiographic changes resulted from myocardial ischemia.

In the three-month interval between two hospitalizations the patient received a total

of 32 pints of whole blood. Multiple blood examinations and electrocardiograms revealed parallelism between the degree of anemia and changes in electric conductivity.

Terminal admission was again for severe substernal pain, shortness of breath and profuse perspiration. Laboratory data were: hemoglobin, 5.6 gm., red blood cells, 2,030,000 per cu. mm.; white blood cells, 64,000 per cu. mm.; 7 myelocytes, 11 metamyelocytes, 11 band forms, 36 neutrophilic segmented cells and 16% lymphocytes. The electrocardiogram was similar to the one taken four months before. The rate was 118 per minute; P-R, 0.18 seconds; QRS, 0.08 seconds; QRS, small in I-III; S-T depressed in I-III, aVF, and V₃; Q prominent in V₆; T of low amplitude in all leads.

Necropsy confirmed the diagnosis of chronic myelocytic leukemia. There was splenomegaly and hepatomegaly, hyper-



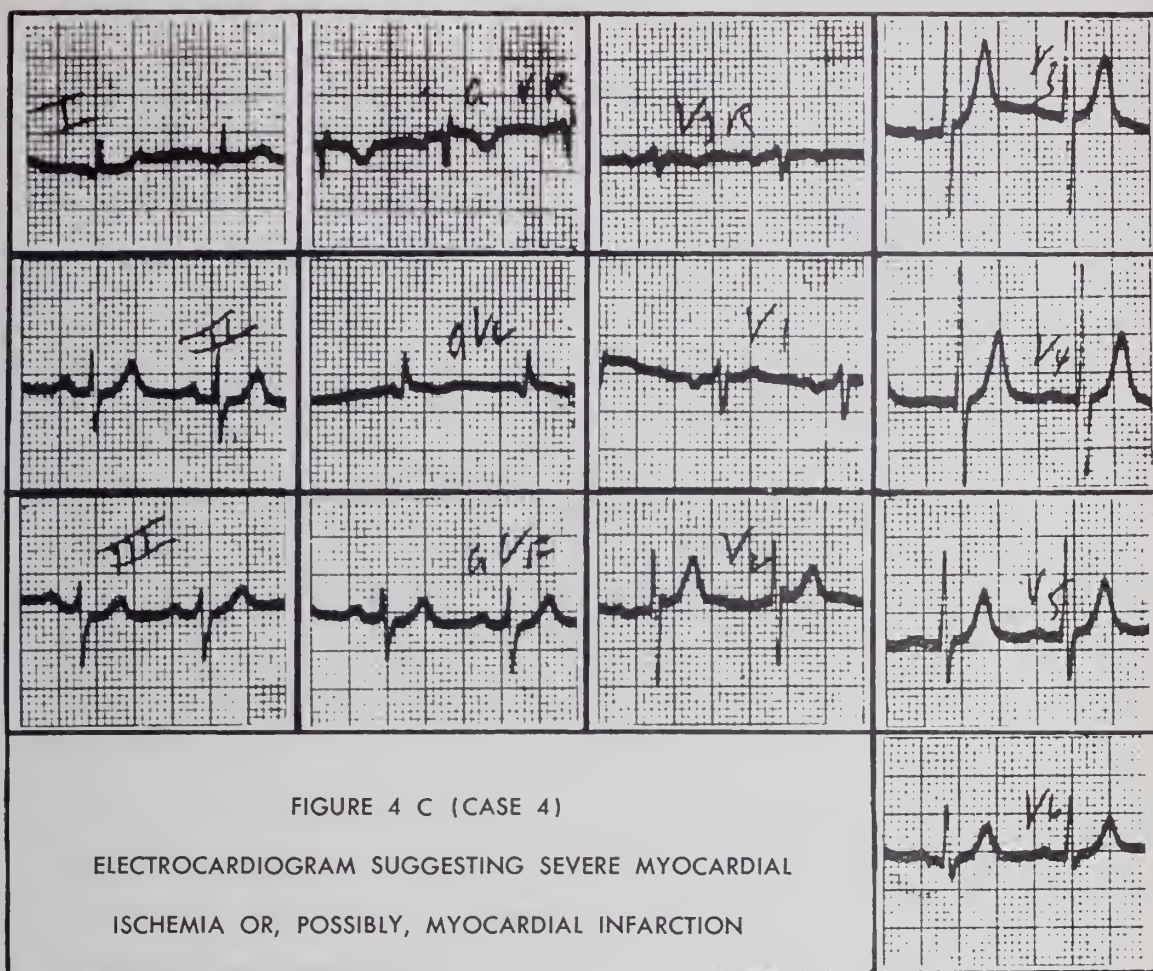
plasia of the bone marrow, petechiae on skin and mucous membranes. Gross nodules were seen in spleen, liver and kidneys. Microscopically, leukemic infiltrates were visible in spleen, liver, kidneys, bone marrow, lymph nodes and adrenals. The heart was slightly enlarged, concentrically. No infiltrates were found in multiple sections of the heart muscle nor was there any evidence of recent or past myocardial infarction. Only isolated yellow plaques were found in the coronary arteries.

Comment: Symptomatology of angina pectoris rendered interpretation of electrocardiographic abnormalities difficult. Fluctuation of the changes with the degree of anemia which accompanied the chronic myelocytic leukemia led to correlation of electrocardiograms with the degree of myocardial ischemia.

DISCUSSION

Examination of sections from necropsies disclosed the presence of leukemic infiltrates in the myocardium of one third of 19 patients who died from various types of leukemia. In one patient with granulocytic leukemia there were infiltrates in the epicardium but not in the myocardium. Curiously, myocardial infiltrates were found in 6 patients with aleukemic and but one with leukemic myeloid leukemia. This observation does not permit conclusions since the total series is small and myocardial involvement has been described in all forms of leukemia.

In one of our patients (no. 1), myocardial infiltration had caused clinical symptoms of heart disease while such were absent in another patient (no. 2). It is questionable whether this difference was due to the degree or to the localization of the



myocardial infiltrate. Lack of parallel between dissemination and degree of leukemic infiltrates in various organs and myocardial involvement or degree of myocardial infiltrate is obvious.

All patients with leukemia develop anemia. Patients with the same degree of anemia may not develop the same degree of myocardial ischemia. The latter is more likely to develop in older patients with impairment of circulation due to atherosclerosis. While reading electrocardiograms one should keep in mind that myocardial ischemia can result in abnormalities similar to those in myocardial infarction, that prolonged severe anemia can result in ischemic infarction and also that a patient with leukemia can develop infarction due to coronary thrombosis. Thrombotic episodes are frequent in patients with leukemia. Of the four patients discussed by us one had femoral vein thrombosis (no. 1) and one had

splenic artery thrombosis (no. 3). In a series of 19 patients, from whom the four illustrative cases were selected, 10 had thrombosis. More or less extensive hemorrhages were noted in all 19 patients. Electrocardiographic changes suggesting myocardial infarction, but actually caused by sudden severe hemorrhage, were noted in one patient (no. 3) with rupture of the spleen.

Costa¹ reported rupture of the left atrium due to myeloid infiltration of the myocardium. Wendkos² described a case of lymphatic leukemia with massive pericardial and also myocardial leukemic infiltrates. This patient's electrocardiogram had deeply inverted T waves in limb leads. Aronson and Leroy³ discussed 8 patients with leukemia: Six had sinus tachycardia, S-T depression, T inversion, prolonged P-R, or premature contractions; four had leukemic myocardial infiltration. Blotner and Sos-

man⁴ suspected myocardial leukemia in a lady who, after many years of hypertension, developed myeloid leukemia and later, heart block. Left axis deviation and T₁ changes were noted. Upon x-ray therapy to the heart, the leukocyte count reverted from 127,000 per cu. mm. to normal, but the conductive block persisted. Kirshbaum and Preuss⁵ observed leukemic involvement of the heart in 42 (34%) of 123 subjects who died of various types of leukemia (53 myeloid, 37 lymphocytic, 28 stem cell and 5 monocytic leukemia). In 19 of the 123 patients leukemia had not been diagnosed during life.

In connection with our report (no. 1) it is of interest that in one of the misdiagnosed patients referred to in the literature⁵, the diagnosis was that of rheumatic heart disease. Apparently, myocardial leukemia and rheumatic myocarditis are rarely confused. Clinical signs of cardiac disease, such as cardiac enlargement, systolic murmurs, tachycardia and palpitation, and exertional dyspnea were ascribed to severe anemia⁵ which is a common concomitant of leukemia. Electrocardiographic abnormalities

were generally thought to be caused by leukemic myocardial infarction^{2,3,4} though all patients with such abnormalities had severe anemia. Difficulty in differential diagnosis of electrocardiograms between myocardial infarction and ischemia (no. 4) or infarction and severe acute blood loss (no. 3) have not been recorded by others.

SUMMARY

Four patients with leukemia presented clinical signs and/or electrocardiographic changes suggestive of myocardial damage on coronary artery disease. Clinical signs and electrocardiographic changes are correlated with necropsy findings.

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+ Editorials +

THE LAW AND THE BLIND

The legal definition of blindness and the Delaware law regarding its reporting appears elsewhere in this issue of *The Journal*. Within the past few weeks you have received a copy of the Annual Report of Delaware Commission for the Blind. The mandatory reporting of blindness may at first seem like more useless paper-work. Read the report, if you have not already done so; you may be pleasantly surprised at the tremendous job of rehabilitation being carried out in the State of Delaware. The proof of the pudding—the results—well

justify the act. We should do everything within our power to help the Commission continue their mission.

The report contains examples of blind persons who are gainfully employed. This is good and valuable publicity. We must remember that industry is willing to accept these people as well as persons with other physical handicaps and it is our responsibility as physicians to see that the patient gets the proper start on the road to rehabilitation.

SCIENCE, THE NEWS, AND THE PUBLIC

A recent report of the National Association of Science Writers, Inc. was published under the above title. Its conclusions were definite but not surprising. The survey established beyond doubt the appreciation of science by the general public and has demonstrated that many readers, listeners, and viewers are willing to give up entertainment features to become better informed about science. Many scientists complain about the manner in which scientific material reaches the public.

Some physicians have argued for years that inasmuch as the public demands medi-

cal information and will get it one way or another, the organized medical profession should assume responsibility for the integrity of the material.

The New Castle County Medical Society has recognized this problem and the report of its Public Relations Committee, published in this issue of *The Journal*, is an excellent beginning. It seems, however, that the rules finally adopted should be more rigid and should leave less to individual interpretation. It is well to say that we are against evil but first let us define evil.

CIVIL SERVANT OF THE YEAR

For the first time in the history of the State of Delaware, the Chamber of Commerce presented an award to a Civil Service employee whose record is outstanding enough to be considered the most proficient in Delaware. No one deserved this honor more than the recipient, a man whose work

is dedicated to helping others. His title is corrective therapist—his work is known commonly as physical rehabilitation—his outstanding performance has been justly recognized. We can be proud that the first recipient of this award has been a person whose work is so closely allied to our own.

MEDICAL COURT CASES



HOWARD NEWCOMB MORSE

Counsellor at Law

*Member of the Bar of the Supreme Court
of the United States of America*

6900 South Shore Drive • Chicago 49, Illinois

“TENURE OF TREATMENT”

CARROLL vs. GRIFFIN

Court of Appeals of Georgia 96 Ga. App. 826, 101 S. E. 2d 764

This was an action for alleged malpractice. The Superior Court of DeKalb County, Georgia, entered judgment for the defendant and denied the plaintiff's motion for a new trial, and the plaintiff brought error (appealed). The Court of Appeals of Georgia affirmed the decision of the lower court.

B. O. Carroll was injured in a wreck while riding in a truck owned by Dr. Claude Griffin, a physician. The accident occurred near Carrollton, Georgia. Carroll was first taken to a hospital or clinic in Carrollton and from there to the Georgia Baptist Hospital in Atlanta. Dr. Griffin was shown by the hospital charts to be the admitting physician. Carroll suffered, as a result of the wreck, a fractured left mandible, a fractured zygomatic bone, at least two fractured ribs, fractures to the vertebral column, and a fractured skull.

After Carroll had been in the hospital for approximately five days, Dr. Griffin had a morphine type drug (pantapon) administered to him. Dr. Griffin then had Carroll taken home. Each Sunday thereafter, ex-

cept one, for three or four weeks Carroll was examined by Dr. Griffin. On one occasion Dr. Griffin found that the fractured mandible had slipped out of place and had become a compound fracture where it had previously been a simple fracture. Dr. Griffin set the fracture. Four weeks later Dr. Griffin advised Carroll that he would have nothing further to do with the case. After being so advised, Carroll contacted an attorney in an effort to force Dr. Griffin to furnish him with continued treatment. Carroll was still suffering from some of the injuries sustained in the accident when Dr. Griffin withdrew.

The Court of Appeals of Georgia declared: “There was no evidence that the defendant abandoned the plaintiff at a critical time when there was a need for immediate treatment, for, although the record does disclose that the plaintiff needed surgical treatment, it does not disclose that such treatment was needed then and there or that if the plaintiff had sought within a reasonable time thereafter other medical care he would have suffered any injury from the alleged abandonment.”

“ACCRUAL OF CAUSE OF ACTION FOR MALPRACTICE”

SHEARIN vs. LLOYD

Supreme Court of North Carolina 246 N. C. 363, 98 S. E. 2d 508

This was a patient's malpractice action against a physician, based on the physi-

cian's failure to remove a lap-pack from the patient's abdomen before closing an appen-

dectomy incision. The Superior Court of Franklin County, North Carolina, rendered judgment for the physician (an involuntary nonsuit against the patient), and the patient appealed. The Supreme Court of North Carolina upheld the decision of the trial court.

The period prescribed in North Carolina for the commencement of an action for malpractice based on negligence is three years from the time the cause of action accrues. The Supreme Court of North Carolina held that the patient's cause of action accrued when the physician closed the incision and was not delayed by the physician's failure thereafter to detect or discover that the lap-pack had not been removed. Inasmuch as the action was not brought within three

years of the time the incision was closed, the action was barred by the statute of limitations.

The Supreme Court of North Carolina stated: "... in an action for damages, resulting from negligent breach of duty, the statute of limitations begins to run from the breach, from the wrongful act or omission complained of, without regard to the time when the harmful consequences were discovered . . . It is inescapable that plaintiff's cause of action accrued . . . when defendant closed the incision without first removing the lap-pack from plaintiff's body. Defendant's failure thereafter to detect or discover his own negligence in this respect did not affect the basis of his liability therefor."

"PATIENT LEFT UNATTENDED"

ROBINSON vs. CAMPBELL

Court of Appeals of Georgia 95 Ga. App. 240, 97 S. E. 2d 544

This was an action by the patient for injuries sustained in a fall in the physician's office. The Superior Court of Fulton County, Georgia, dismissed the suit, and the patient appealed.

Miss Allie B. Robinson was a patient of Dr. William E. Campbell, Jr., having been treated by him for an eye condition which resulted in a partial loss of sight by Miss Robinson. Subsequently, she went to Dr. Campbell's office for treatment of her impaired sight. He seated her in a chair designed to be raised or lowered to permit treatment of the eyes of any patient seated in it. She was raised in the chair and a me-

dication of a kind unknown to her was placed in her eyes. She was left in a dependent condition for approximately 30 minutes, the physician's employee-attendants being no longer present. Miss Robinson attempted to get down from the chair, tripped and fell, being injured thereby.

The Court of Appeals of Georgia affirmed the decision of the trial court. The Court of Appeals declared: "... the plaintiff was injured by her own act of attempting to get down from the chair which she knew had been raised so as to permit the defendant to examine and treat her eyes."

NEW CASTLE COUNTY MEDICAL SOCIETY

Report of the Public Relations Committee

A SUGGESTED GUIDE FOR NEWS RELEASE OF MEDICAL NEWS

Physicians, and the hospitals in which they work, and the societies to which they belong, frequently become news, and the center of public interest and comment. This is as it should be, for news is people, places, and situations, fresh information, concerning something that has recently taken place.

Good, accurate medical news, properly released is most desirable, and at times exciting, and members of this society are urged to submit items of interest for consideration of news release . . . which items properly prepared, in good taste and ethics, and most important in fairness and honesty create a most favorable climate of public relations.

The public relations committee in a recent meeting felt that, within the present by-laws, it should be and is available to receive and discuss information of import, and the committee has geared itself to a positive approach whereby rapid review and release of news to authorized channels may be expedited. Your committee reviewed, and sifted procedures followed in other medical societies, and submits for your consideration the better points in the various guides.

The purpose of this guide is to promote a greater and smoother flow of accurate medical news from the medical profession, both those in private practice, and those who work in hospitals, to those engaged in collecting and disseminating such news.

1. To facilitate obtaining such news or information, the society may furnish the responsible news representative with a list of physicians from whom authoritative information may be obtained, or the society may designate the officers, committee chairmen, or other chosen spokesmen of the society, to be available at all times to authorized members of the press, radio, and tele-

vision, in order that authentic information on medical subjects, and news be obtained as promptly as possible.

2. The spokesman may be quoted by name and title. This should not be considered as seeking self-publicity by their colleagues, when such news is sought, and when it is in the best interest of the public and profession and individual physicians. When approached by an authorized representative of a news bureau, seeking information relating to scientific subjects, they are urged to comply unless a premature release be a matter of concern.

3. Photographs of physicians are acceptable, unless the time and place shall indicate self-exploitation. Borderline situations should be cleared with the proper concerned committee chairman or other spokesman chosen by members of this society.

4. Principles of professional conduct shall prevail at all times.

5. The personal privacy and legal rights of all patients shall be protected at all times. When such information is requested, the consent of the patient, be he an important person or not, must be obtained, and the will of the patient is final.

6. When appearing on radio or television programs, and when presented as doctor so and so, sound judgment and good common sense and an adherence to our professional code and conduct are expected of any physician, since he cannot escape the implication of representing the profession or his medical society.

7. Cooperation with authorized reporters is desirable, but should the item or topic be unripe or unwise for release at the time, a frank discussion of the topic and reason for delay is wise. We feel that the reporter

will cooperate, with valid reasons, and will not indulge in news by inference or ghost reporting or a negative approach.

8. The Board of Censors may discipline for non-cooperation with these suggestions, if adopted.

Equally important to the ultimate success of this endeavor, is the manner in which news is released by the hospitals of this area, whose medical staffs are almost wholly composed of members of this society. These plans must be the product of the administrative bodies of the individual institution, who can best suit the particular need. We

do feel, however, that a coordinated manner of news release will serve everyone best, and keep a conflicting opinion or situation from occurring.

These suggestions, which we consider quite fundamental, are presented for your consideration, and we urge you to adopt them.

Respectfully submitted,
William O. LaMotte, Jr., M.D.
Charles E. Maroney, M.D.
James T. Metzger, M.D.
Alexander Smith, M.D.
Charles T. Lawrence, M.D., Chairman

DEFINITION OF BLINDNESS

"Blind person" means one who is totally blind or has visual acuity of not more than 20/200 in the better eye with best correc-

tion, or whose vision is limited in field so that the widest diameter subtends an angle no greater than 20 degrees.

MANDATORY REPORTING

The laws of the State of Delaware (Title 31, Section 2109) require that every health and social agency, attending or consulting physician, or nurse, shall report to the Commission for the Blind, in writing, the name, age and residence of persons who are blind within the definition of blindness as indicated above, and in such cases shall furnish

such additional information as the Commission requests for registration or prevention of blindness.

The Commission respectfully urges that this requirement of Delaware law be diligently adhered to in order that all blind citizens may know the services available to them, and benefit accordingly.

PROCEEDINGS OF THE HOUSE OF DELEGATES

The meeting of the House of Delegates of the Medical Society of Delaware was called to order in the Dover Hotel, Dover, Delaware, on Sunday, September 28, 1958, at three-thirty o'clock. Dr. John B. Baker, President of the Society, called the meeting to order and after the roll call, declared a quorum to be present. The reports of the officers and committees were presented as follows:

REPORT OF SECRETARY

To House of Delegates
Medical Society of Delaware

The office of the Secretary has been conducted on a current basis during the past year. Minutes of the Council meetings have been kept. The Secretary has also assisted in the negotiations with the Department of Defense with regard to Medicare program.

Respectfully submitted,
NORMAN L. CANNON, M.D.
Secretary

REPORT OF THE EXECUTIVE SECRETARY

There is no practical way for me to present through the relatively short medium of an annual report to the House of Delegates the daily work of the headquarters office for a period of twelve months. Most of the Society's accomplishments and failures during this time appear in the reports of its committees, and most of these have involved staff work to greater or less degree. For me to detail the efforts and special problems of each group would be repetitious and of no purpose. I would prefer, rather, to discuss the topics that fall, as it were, between the areas of committee responsibility, and have had, therefore, to be handled either as a part of the staff work or on an adhoc basis.

The Executive Secretary reports that the membership of the Society stands at 414, distributed among the counties as follows:

Kent County Medical Society	31
New Castle County Medical Society	326
Sussex County Medical Society	57

ANNUAL MEETING

The lack of good convention facilities in the state of Delaware remains a problem. Within the narrow limits of availability, the duPont Country Club offers the best site obtainable this year. We have been able to provide twenty-eight booths, which will accommodate twenty-five technical and three scientific exhibits. Applications for space in both categories have had to be rejected, simply because we had no place to put them. Revenue from exhibits is \$1,270 this year, lower than last year, and than 1953, higher than at any other annual meeting. This was accomplished by raising exhibit rates, not by the preferable method of providing more space to accommodate more exhibits. Exhibit revenue still fails to provide the 50% of annual meeting cost that would be a desirable minimum, and will probably continue to do so until good convention facilities exist.

The exhibit background panels designed and purchased last year have been wired for electricity,

enabling us to receive higher rental for their use. They have now paid for themselves completely and returned a net profit. We can anticipate a return on the investment of from \$400-\$500 per year for use in presenting the Annual Meeting, before it becomes necessary to replace them.

I should like again to remind the Society that the exhibitors' attendance and the help they provide is dependent upon each member's accepting the responsibility of visiting the exhibits and providing the contact with physicians for which these firms are paying.

POLIO INOCULATION CAMPAIGN

With the cooperation of the State Board of Health and the Delaware Chapters of the National Foundation for Infantile Paralysis, the series of free public polio clinics has been completed. The Board of Health's figures show a total of 344,837 doses of vaccine given through the clinics, the school program, and the field trials. The Board also estimates that 211,094 doses of the vaccine were given by physicians in private offices. The results show that approximately 85% of the child population from birth through 19 years of age has had three doses of vaccine, while about 7% more have had one or two doses. The group from 20-45 has 35% complete coverage, with an additional 17% incompleated. Assessed in terms either of public health or public relations, the results of this campaign have been excellent. The Society has reason to be grateful to the radio and the press for their outstanding cooperation. Appropriate letters of thanks have been sent. As a specific gesture of thanks, the News Journal Company was invited to send a representative to the AMA-National Science Writers Association meeting on writing medical news. Mr. Cy Liberman attended this as the Society's guest, in company with the Executive Secretary.

MEDICARE

The Medicare program has continued in operation. For the period September 1, 1957 through August 31, 1958, physician payments in Delaware have totalled \$190,298 for 2539 patients. Under the authority of the 1957 House of Delegates a new contract was negotiated in Washington April 14, and became effective May 1. The revisions in the program that became effective October 1, and of which all members of the Society have been notified, materially reduce the services payable and the eligibility of patients for Medicare. The Department of Defense is under mandate from the Joint Senate-House Committee on Defense Appropriations to confine Medicare spending to 72 million dollars. It appears that this will be done even at the cost, if necessary, of suspending the program until appropriations can be voted for the next fiscal year. While pressure for restrictions appears to have originated with the services, the Congress is responsible for their imposition. This should be kept in mind when explanations are called for.

The Society's thanks are due Group Hospital Service, Inc., which continues to act as fiscal agent for the Medicare program on a non-profit basis.

JOURNAL

The Executive Secretary continues to manage the business of the Delaware State Medical Journal. Having shown an operating gain for three consecutive years, the Journal has recouped its losses and appears to be in good financial condition. While it still does not bear a realistic share of its own cost, it has built a cash reserve which stands to the Society's credit, and is now in a position to contribute financially to the Society's operation. The Publications Committee has realized this and plans this year to assume a proportionate share of the office rent and to provide service and equipment which would not otherwise be available.

Prospects for the coming year are complicated by plans to change from one printer to another at what are expected to be increased rates. This will lower the Journal's margin for operations, but will be offset to some extent by an increase in advertising rates. We expect greatly improved service to result from the change. If advertising volume remains about the same, the Journal should show a small gain for the coming year and stabilize at about cost after that, at which time it will be spending about \$2500 more a year than at present on its own improvement and contributing in excess of \$1000 per year to the Society's operating expenses.

The report of the Committee on Public Laws deals with the Society's legislative activities, which I do not wish to repeat here. I do want to make the point that the one most imperative bill in the General Assembly to be stopped was stopped, and that this was done in the face of determined well-organized opposition through the personal participation in the effort of a substantial number of physicians. The Legislative climate toward physicians is still not at the optimum, but the great improvement resulting from the polio effort has been added to by this demonstration of solidarity.

Our congressional delegation was visited in Washington and has received the Society's views upon specific issues. They have shown unfailing courtesy, and have been, on the whole, responsive to the Society's requests.

HEADQUARTERS OFFICE

The acquisition of Mrs. Winifred Donnelly as Office Secretary and of the beginnings of a modern office have benefited the Society. Mrs. Donnelly devotes many hours of uncompensated time to this organization and her presence has made possible the complete reorganization of the office and of the vast amount of unsorted, uncatalogued material that has accumulated over the years. For the first time, the Society has usable informative files. The reorganization of this material will be completed with the institution this winter of completely new membership records, to be done concurrently with publication of the bi-annual roster. This reorganization has consumed a great deal of time through the year, but, once done, should be relatively easy to maintain.

I want, in conclusion, to express my appreciation to the officers and members of each county society for their courtesy and hospitality when I have visited them, and to the Medical Society of Delaware as a whole for the pleasure of working with the physicians of Delaware during the year past.

Respectfully submitted,
LAWRENCE C. MORRIS, JR.
Executive Secretary

REPORT OF THE TREASURER

Gentlemen:

We have examined the financial records of the Treasurer of the Medical Society of Delaware and of the Delaware State Medical Journal for the year ended July 31, 1958, the results of which are included in this report, consisting of the commentary and the following statements:

Title:	Exhibit and/or Schedule
Balance sheet at July 31, 1958	A
Statement of cash receipts and disbursements for the year ended July 31, 1958:	
General fund	B
Delaware State Medical Journal	C
Budgetary statement of revenue and expenditures for the year ended July 31, 1958:	
General fund	D
Statement of securities owned at July 31, 1958 and income therefrom during the year then ended:	
General fund	A-1
Reconciliation of dues and A.M.A. assessments for the seven months ended July 31, 1958:	
General fund	B-1

HISTORY

At the 1957 annual session, the House of Delegates approved an amendment to the by-laws of the society, changing its fiscal year from December 31, to July 31, and, under separate cover, we have submitted an audit report for the year ended December 31, 1957. However, for future convenience in comparisons and budgeting, the financial statements of this report include operations for the year ended July 31, 1958, so that the operations for the period August 1, 1957 to December 31, 1957 are included in both reports. The budgetary statement included in the report for the fiscal year ended July 31, 1958 was originally adopted for the calendar year 1958.

Information returns, required by federal statutes, have been prepared for both the year ended December 31, 1957 and the seven months ended July 31, 1958 and, form 1128, Application for Change in Accounting Period, has been filed with the U. S. Treasury Department.

SCOPE OF EXAMINATION

Testings were made of income and expense factors in both the Treasurer's records and those of the Delaware State Medical Journal to the extent we deemed appropriate in the circumstances. Cash received was traced to deposits in bank and expenditures were verified by reference to canceled checks and/or vendors' invoices. Cash in banks as of July 31, 1958 was confirmed direct to us by the various depositories and was reconciled with the book balances therefor at that date. Securities owned at July 31, 1958 were examined by us at the Bank of Delaware on September 17, 1958 in the presence of Charles Levy, M.D. and income earned thereon during the period under review was verified by recomputations or reference to accredited financial publications. Other verifications deemed necessary are commented upon in the ensuing paragraphs of this report.

COMMENTARY

A statement of financial condition at July 31, 1958 is presented in exhibit A; while statements

of cash receipts and disbursements for both funds, showing a segregation of operations for the months of August through December 1957 and January through July 1958, are included herein as exhibits B and C, respectively. A budgetary statement of operating factors within the General fund, using the anticipated revenues and appropriated expenditures originally approved for the calendar year 1958, is presented in exhibit D. The society maintains three separate savings accounts, the transactions of which are not included in the operating statements of this report but the changes therein during the period under review are detailed in the following tabulation:

	REGULAR FUND Wilmington Savings Fund Society	STATE MEDICAL JOURNAL Wilmington Savings Fund Society	Wilmington Trust Company
BALANCES,			
JANUARY 1, 1957	\$4,805.08	\$3,626.53	\$1,719.30
RECEIPTS:			
Interest earned:			
Period 1-1-57			
to 12-31-57	\$ 156.16	\$ 117.84	\$ 28.76
Period 1-1-58			
to 7-31-58			17.48
	\$ 156.16	\$ 117.84	\$ 46.24
	\$4,961.24	\$3,744.37	\$1,765.54
DISBURSEMENTS:			
None			
	\$4,961.24	\$3,744.37	\$1,765.54

The current effective rate of earnings in these accounts is 3½% per annum at the Wilmington Savings Fund Society and 2% at Wilmington Trust Company. Wilmington Trust Company credits interest to its savings accounts semi-annually at June 30 and December 31; while the Wilmington Savings Fund Society credits interest to its accounts annually on December 31. The balances shown, therefore, include interest earned through June 30, 1958 at the Wilmington Trust Company and through December 31, 1957 at the Wilmington Savings Fund Society.

At the 1957 annual session, the House of Delegates approved a transfer of the Medical Defense fund to the General fund balance account but indicated that a reserve of \$1,000.00 should be retained within the latter fund for possible legal litigation. The Defense fund comprised the savings account shown in the foregoing tabulation, which for purposes of this report is indicated to be General fund cash and the reserve account has been adjusted to show a fixed balance of \$1,000.00 as authorized.

RECOMMENDATION

In our opinion, the Delaware State Medical Journal should function within budgetary restrictions and closer supervision should be exercised over the appropriations within the General fund. The Treasurer of the Society should not be expected to assume the detailed supervision this would entail but should merely review trends throughout the year as he deemed desirable. We suggest the actual record keeping, depositing of funds, issuance of checks and preparation of reports be transferred to the office of the Executive Secretary. The Treasurer would retain the au-

thority to sign checks but the transfer of records proposed would relieve him of certain detailed accounting functions and it would permit all records of the Society to be retained in a central location.

CONCLUSION

In our opinion, the accompanying balance sheet and related statements of cash receipts and disbursements present fairly the financial position of the Medical Society of Delaware at July 31, 1958 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with the preceding period.

We wish to express our appreciation for the courtesies extended to us during the course of this examination.

Very truly yours,
HAGGERTY & HAGGERTY
Certified Public Accountants

Exhibit A

Balance Sheet at July 31, 1958

ASSETS	
GENERAL FUND:	
Cash in bank:	
Regular account—	
exhibit B	\$19,467.30
Savings account	4,961.24
	\$24,428.54
Investment—	
schedule A-1:	
Stocks	12,201.08
Government bonds	5,040.00
	17,241.08
Due from State	
Medical Journal	222.76
	\$41,892.38
DELAWARE STATE MEDICAL JOURNAL:	
Cash in bank:	
Operating account—	
exhibit C	7,204.98
Savings accounts	5,509.91
	12,714.89
Investments—	
Government bonds	3,502.38
	16,217.27
	\$58,109.65
LIABILITIES AND FUND BALANCES	
GENERAL FUND:	
Liabilities:	
Employees' withholdings and accrued payroll taxes	\$ 191.81
Reserve:	
Defense fund	1,000.00
Fund balance	40,700.57
	\$41,892.38
DELAWARE STATE MEDICAL JOURNAL:	
Liabilities:	
Due to General fund.	\$ 222.76
Fund balance	15,994.51
	16,217.27
	\$58,109.65

Exhibit B

General Fund
Statement of Cash Receipts and Disbursements
For the Year Ended July 31, 1958

	Total	7 Months Ended 7-31-58	5 Months Ended 12-31-57
BALANCES, BEGINNING OF PERIOD	\$18,718.83	\$10,592.29	\$18,718.83
RECEIPTS:			
Dues:			
State Society	17,319.50	16,967.00	352.50
A.M.A.	9,112.50	8,925.00	187.50
Subscriptions—Medical Journal	1,111.50	1,083.00	28.50
	<u>27,543.50</u>	<u>26,975.00</u>	<u>568.50</u>
Annual session—proceeds of ticket sales	1,400.00		1,400.00
Annual session—rent exhibit space	1,245.00	250.00	995.00
Income from investments	660.50	330.50	330.00
Medical Journal—rent and stenographer	480.00	280.00	200.00
Reimbursement—travel	188.80	188.80	
Registration—seminar	55.00	55.00	
Reimbursement—postage	41.71		41.71
Women's auxiliary—reimbursement files	38.36	38.36	
A.M.A.—1% reimbursement collection of dues	37.88	1.88	36.00
Group hospital—medicare program	23.84	23.84	
Employees' withholdings	1,408.65	940.60	468.05
	<u>33,123.24</u>	<u>29,083.98</u>	<u>4,039.26</u>
BEGINNING BALANCES AND TOTAL RECEIPTS	<u>51,842.07</u>	<u>39,676.27</u>	<u>22,758.09</u>
DISBURSEMENTS:			
Salaries:			
Executive secretary	6,683.33	4,183.33	2,500.00
Stenographer	2,275.00	1,650.00	625.00
Payroll taxes—Society's share	201.56	131.25	70.31
	<u>9,159.89</u>	<u>5,964.58</u>	<u>3,195.31</u>
Operations:			
Subscriptions to Journal	1,153.50	1,059.00	94.50
Contributions	1,055.00		1,055.00
Office furniture (38.36 refunded—contra)	1,032.14	527.42	504.72
Symposium	100.00		100.00
	<u>3,340.64</u>	<u>1,586.42</u>	<u>1,754.22</u>
Office:			
Rent and electric	\$ 1,026.28	\$ 627.92	\$ 398.36
Printing, stationery and postage	797.71	430.81	366.90
Telephone and telegraph	322.58	169.41	153.17
Subscriptions	83.00	48.00	35.00
Rent—safe deposit box	5.50	5.50	
Miscellaneous	18.00		18.00
	<u>2,253.07</u>	<u>1,281.64</u>	<u>971.43</u>
Travel:			
A.M.A. delegate (\$188.80 refunded—contra)	1,236.54	1,017.24	219.30
A.M.A. conference	219.25	219.25	
Guest speaker	100.00		100.00
Local	377.95	255.58	122.37
	<u>1,933.74</u>	<u>1,492.07</u>	<u>441.67</u>
Annual session:			
Meals and entertainment	2,160.00		2,160.00
Stenotypist	652.50		652.50
Rent of hall	528.60		528.60
Program and tickets	438.30		438.30
Exhibits	474.15		474.15
Badges	82.97		82.97
Miscellaneous	69.00		69.00
	<u>4,405.52</u>		<u>4,405.52</u>
Other:			
A.M.A. assessment	9,562.50	8,850.00	712.50
Withholdings—due from "Journal"	222.76	121.29	101.47
Dues refunded	75.00	75.00	
Employees' withholdings	1,421.65	837.97	583.68
	<u>11,281.91</u>	<u>9,884.26</u>	<u>1,397.65</u>
	<u>32,374.77</u>	<u>20,208.97</u>	<u>12,165.80</u>
BALANCES, END OF PERIOD	<u>\$19,467.30</u>	<u>\$19,467.30</u>	<u>\$10,592.29</u>

Exhibit C

Delaware State Medical Journal
Statement of Cash Receipts and Disbursements
For the Year Ended July 31, 1958

	Total	7 Months Ended 7-31-58	5 Months Ended 12-31-57
BALANCE, BEGINNING OF PERIOD	\$ 3,658.28	\$ 3,424.94	\$ 3,658.28
RECEIPTS:			
Subscriptions:			
Members	1,177.50	1,083.00	94.50
Single copies	22.76	17.51	5.25
Other subscriptions	203.54	180.54	23.00
	<u>1,403.80</u>	<u>1,281.05</u>	<u>122.75</u>
Advertisements	23,974.43	15,512.75	8,461.68
Interest—U. S. Government bonds	87.50	43.75	43.75
Proceeds—sales of rosters	4.00	4.00	.....
Royalties	.53	.53	.....
Employees' withholdings	134.61	79.51	55.10
	<u>25,604.87</u>	<u>16,921.59</u>	<u>8,683.28</u>
BEGINNING BALANCES AND TOTAL RECEIPTS	<u>29,263.15</u>	<u>20,346.53</u>	<u>12,341.56</u>
DISBURSEMENTS:			
Salaries:			
Editor	3,000.00	1,750.00	1,250.00
Others	205.00	145.00	60.00
	<u>3,205.00</u>	<u>1,895.00</u>	<u>1,310.00</u>
Publishing costs	17,862.63	10,789.70	7,072.93
Rent and stenographer	480.00	280.00	200.00
Stationery and postage	102.45	59.00	43.45
Insurance—bonding	92.85	92.85	.....
Stenographer symposium	65.00	.....	65.00
Registration fee—copyrights	48.00	.....	48.00
Miscellaneous	102.34	25.00	77.34
Employees' withholdings	99.90	.....	99.90
	<u>22,058.17</u>	<u>13,141.55</u>	<u>8,916.62</u>
BALANCES, END OF PERIOD	\$ 7,204.98	\$ 7,204.98	\$ 3,424.94

Exhibit D

General Fund
Budgetary Statement of Revenue and Expenditures
For the Year Ended July 31, 1958

	Anticipated	Realized	Excess Deficit
REVENUE:			
Dues—current	\$19,000.00	\$18,431.00	\$ 569.00
Annual dinner	750.00	1,400.00	650.00
Exhibit rentals	700.00	1,245.00	545.00
Dividends	500.00	660.50	160.50
Medical Journal—rent and stenographer	480.00	480.00	.....
A.M.A. reimbursement—dues processed	70.00	37.88	32.12
Registration—seminar .....	.....	55.00	55.00
	<u>\$21,500.00</u>	<u>\$22,309.38</u>	<u>\$ 809.38</u>
	Appropriated	Expended	Unexpended Overexpended
EXPENDITURES:			
Salaries:			
Executive secretary	\$ 7,000.00	\$ 6,683.33	\$ 316.67
Stenographer	3,000.00	2,275.00	725.00
Payroll taxes—Society's share	160.00	201.56	41.56
	<u>10,160.00</u>	<u>9,159.89</u>	<u>1,000.11</u>
Operations:			
Committees	1,575.00	.....	1,575.00
Subscriptions to journal	1,275.00	1,153.50	121.50
Contribution—Delaware Academy of Medicine	1,000.00	1,000.00	.....
Auditor	200.00	.....	200.00
Miscellaneous	200.00	.....	200.00
Symposium .....	.....	76.16	76.16
Refund dues—prior year .....	.....	75.00	75.00
Contributions—other .....	.....	55.00	55.00
	<u>4,250.00</u>	<u>2,359.66</u>	<u>1,890.34</u>
Office:			
Rent	900.00	1,026.28	126.28
Equipment	450.00	993.78	543.78
Printing, stationery and postage	450.00	756.00	306.00
Telephone and telegraph	400.00	322.58	77.42
Miscellaneous	150.00	106.50	43.50
	<u>2,350.00</u>	<u>3,205.14</u>	<u>855.14</u>
Travel:			
A.M.A. conference	425.00	219.25	205.75
A.M.A. delegate	700.00	1,047.74	347.74
Local	300.00	377.95	77.95
Guest speakers	200.00	100.00	100.00
Contingency	200.00	.....	200.00
A.M.A. Public Relations Institute	135.00	.....	135.00
	<u>1,960.00</u>	<u>1,744.94</u>	<u>215.06</u>
Annual Session:			
Meals and entertainment	\$ 1,100.00	\$ 2,160.00	\$ 1,060.00
Stenotypist	350.00	652.50	302.50
Program and tickets	300.00	438.30	138.30
Rent of hall	300.00	528.60	228.60
Badges	70.00	82.97	12.97
Exhibits	50.00	474.15	424.15
Miscellaneous	45.00	69.00	24.00
	<u>2,215.00</u>	<u>4,405.52</u>	<u>2,190.52</u>
TOTAL EXPENDITURES	<u>20,935.00</u>	<u>20,875.15</u>	<u>59.85</u>
EXCESS REVENUE OVER EXPENDITURES	<u>565.00</u>	<u>1,434.23</u>	<u>869.23</u>
	<u>\$21,500.00</u>	<u>\$22,309.38</u>	<u>\$ 809.38</u>

Schedule A-1

GENERAL FUND
Statement of Securities Owned at July 31, 1958
And Income Therefrom During the Year Then Ended

Face Value or Shares	BONDS	Book Value 8-1-57	Transactions During Year			Book Value 7-31-58	Market Value 7-31-58	Income Received Exhibit B
			Purchases	Sales or Redemption	Gain Loss			
\$7,000	U.S. Savings bonds, series J, dated Oct. 1953, due Oct. 1965....	\$ 5,040.00	\$	\$	\$	\$ 5,040.00	\$ 5,523.00	\$
	STOCKS							
33 shs	Bank of Delaware, capital, par \$25.00	1,725.00A	.....	.....	.....	1,725.00	3,085.50	133.50
40 shs	Continental American Life Insurance Co. par \$10.00	1,130.50	.....	.....	.....	1,130.50	2,640.00	62.00
40 shs	E. I. duPont de Nemours & Co., \$4.50 pfd., no par	4,741.03	.....	.....	.....	4,741.03	4,060.00	180.00
7 shs	Farmers Bank of State of Delaware, capital, par \$50.00	2,800.00	.....	.....	.....	2,800.00	4,725.00	210.00
15 shs	Hercules Powder Co., 5% pfd., par \$100.00	1,804.55	.....	.....	.....	1,804.55	1,650.00	75.00
		12,201.08	.....	.....	.....	12,201.08	16,160.50	660.50
		<u>\$17,241.08</u>	\$	\$	\$	<u>\$17,241.08</u>	<u>\$21,683.50</u>	<u>\$ 660.50</u>

(A) Received 3 shares as 10% stock dividend.

Schedule B-1

GENERAL FUND
Reconciliation of Dues and A.M.A. Assessments
For the Seven Months Ended July 31, 1958

	TOTAL		NEW CASTLE		SUSSEX		KENT	
	Members	Amount	Members	Amount	Members	Amount	Members	Amount
STATE SOCIETY DUES:								
Dues received (A)	361	\$16,967.00	287	\$13,489.00	48	\$ 2,256.00	26	\$ 1,222.00
SUBSCRIPTIONS—								
STATE MEDICAL JOURNAL:								
Subscriptions received	361	\$ 1,083.00	287	\$ 861.00	48	\$ 144.00	26	\$ 78.00
Remitted to								
State Medical Journal	353	1,059.00	287	861.00	40	120.00	26	78.00
Difference (B)	8	\$ 24.00	—	\$	8	\$ 24.00	—	\$
AMERICAN MEDICAL ASSOCIATION:								
Assessments received	357	\$ 8,925.00	285	\$ 7,125.00	46	\$ 1,150.00	26	\$ 650.00
Remitted to A.M.A.	354	8,850.00	285	7,125.00	43	1,075.00	26	650.00
Difference (C)	3	\$ 75.00	—	\$	3	\$ 75.00	—	\$

(A) 1 member's dues (Sussex County) refunded 8-11-58.

(B) 7 subscriptions remitted 8-11-58 and 1 subscription refunded.

(C) 2 assessments paid 8-12-58 and 1 assessment refunded.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

The Committee on Medical Education has continued its efforts to bring information on advances in medicine to Delaware physicians in practical form. The series of Seminars on Advances in Medicine begun in 1957 has been continued. On November 21, 1957, the Committee presented a three-hour seminar in the Dover Presbyterian Church on "Factors in the Management of Infections", with the cooperation of the Department of Medicine of the Johns Hopkins University School of Medicine. We were fortunate in obtaining Doctors R. Wagner, L. E. Cluff, and E. W. Hook, who discussed, respectively, viral, staphylococcal, and salmonella infections. This was followed by a Round table discussion and question period, which was apparently well received by those physicians who attended.

Another seminar was held May 22, at the Nanticoke Memorial Hospital, Seaford. At the request of the hospital staff, this dealt with "Practical Aspects of Fluid and Electrolyte Balance". We are indebted to the Chemical Section of the Department of Medicine of the University of Pennsylvania School of Medicine and to Dr. George D. Webster, Jr., for their cooperation in this seminar. We are also indebted to Dr. William B. Cooper, Jr., of Seaford, whose presentation of clinical histories materially contributed to the Practicality of this session.

The Committee is presently planning an eight hour seminar on "Care of the Premature Infant", which will be held in early December at the Alfred I. duPont Institute. This will be a joint undertaking with the Delaware State Board of Health and the Cornell University School of Medicine.

The current rate of fourteen hours of instruction per year in these seminars appears to meet the demand. The Committee is willing and able to increase this if there is any positive evidence of demand for more education. Questionnaires have been circulated after each seminar to assess the informational needs of the medical communities. These have been used as a guide in the planning of future seminars, and by Dr. Baker in his planning of the 1958 Annual Meeting.

Generally speaking, the attendance of the seminars by physicians within the respective counties has been gratifying. It has been disappointing, on the other hand, that relatively few physicians have crossed county lines to attend them. The Committee hopes for an increased attendance by physicians of the various counties of affairs held in other counties.

The Committee remains aware of the problems involved in securing more education without leaving one's practice. It has placed in circulation five audio-visual kits for individual study by physicians of the state. Two of these, a review of radiology and a kit on gynecological lesions, have been borrowed from the University of Utah School of Medicine. The remaining three have been supplied by the Delaware Heart Association and by the American Heart Association, and have dealt with various aspects of heart disease.

While in circulation these kits have served a double purpose. By following them up with questionnaires, we have been able to eliminate the necessity for developing our own pilot kit, for which money was appropriated at the last Annual Meeting to investigate the possibilities of this medium. This has resulted in a saving to the Society of about \$500. It is possible that the Committee will develop one or more teaching kits along these

lines, but we have decided to concentrate our efforts on another project that seems more profitable, and about which we did not know at the time of the submission of our last report.

A good possibility exists that two-way radio conferences, permitting direct conversational question and answer periods with the facilities of medical schools from hospital staff conferences, will be instituted in the Philadelphia area. This type of conference has been proven most convenient and very valuable in upstate New York, where it has been pioneered by the State University of New York School of Medicine in Albany.

The Committee has investigated the potentialities of a program of this type with Dr. Fred Richardson, Executive Secretary of the Hartford Foundation, who has, in turn, consulted with fm station WHYY, Philadelphia's Educational TV & FM Channel, and with the Albany Medical School.

There are many technical factors, including the availability of bandwidths, FCC licensing, and practical range of transmission that have yet to be finally solved. It is our impression however, that the WHYY transmitter is capable of instituting this service, and that a change in FCC regulations now being studied would make these conferences practical. The Committee feels that the advantages of regularly scheduled, "live" two-way conferences with medical school faculty are obvious, and recommends to the House of Delegates that this Committee be empowered to continue its efforts to bring this project to Delaware. The estimated cost per hospital installation is \$750, for which financing may be available from sources outside the state.

The Committee also wishes to express its appreciation to Dr. Richardson for the two trips that he has made to Wilmington to meet with the Committee, and for his interest in our problems.

The Committee has observed some scheduling conflicts among the major medical organizations in this state. It suggests that organizations planning major medical meetings for substantial numbers of physicians inform the County and State Medical Societies of their proposed dates as far in advance as possible. If cooperation is forthcoming in this respect, it will be possible for the State Medical Society to serve as a clearing house for scheduling information. Without cooperation this will obviously be impossible, and the Delaware physician will be penalized. The state society, meanwhile, will find ways of giving more publicity to the meeting dates of which it has knowledge.

Respectfully submitted,
LEWIS B. FLINN, M.D.
Chairman

COMMITTEE ON THE BUDGET

RECEIPTS

Dues	\$20,000.00
Dinner Tickets	925.00
Exhibits	700.00
Dividends	600.00
Journal's Contribution	480.00
AMA Reimbursement	85.00
	\$22,790.00

DISBURSEMENTS

Salaries, Executive Sec. ..	\$ 7,000.00
Secretary	3,300.00
Social Security Taxes	202.50

\$10,502.50 \$10,502.50

OPERATIONS

Journal Subscriptions	\$ 1,300.00	
Committee on Public Laws	200.00	
Committee on Medical Service & Public Relations	500.00	
Committee on Medicare Adjudication	50.00	
Committee on A.M.E.F. ..	150.00	
Other Committees	200.00	
Auditor	275.00	
Miscellaneous	200.00	
Woman's Auxiliary	100.00	
	\$ 2,975.00	\$ 2,975.00

OFFICE

Rent	\$ 1,350.00	
Telephone, Telegraph	400.00	
Printing & Stationery	600.00	
Miscellaneous	150.00	
	\$ 2,500.00	\$ 2,500.00

TRAVEL

AMA Delegates	\$ 500.00	
AMA - MSEC Conference	200.00	
AMA - Public Relations Institute	150.00	
Guest Speakers	300.00	
Local	300.00	
Contingency	350.00	
	\$ 1,800.00	\$ 1,800.00

ANNUAL MEETING

Program & Tickets	\$ 300.00	
Badges	70.00	
Stenotyping	550.00	
Prospectus	50.00	
Clerical	45.00	
Janitor	50.00	
Dinner & Supper	1,200.00	
	\$ 2,265.00	\$ 2,265.00

MEMBERSHIPS & CONTRIBUTIONS

Aces & Deuces (AMA)....	\$ 25.00	
Conference of Presidents of State & Medical Societies	25.00	
Medical Society Executives Assoc. (Exec. Sec'y)	10.00	
Delaware State Science Fair	50.00	
	\$ 110.00	\$ 110.00

Balance For Contingencies \$ 2,637.50

*Hold over appropriation of \$500 for Committee on Education not included

**Estimated six months in present location @ \$75 per month

Estimated six months in Delaware Academy of Medicine @ estimated \$150 per month

Respectfully submitted,
CHAS. LEVY, M.D.

REPORT OF THE EDITOR

During the past 12 months interest has waned in the Journal. Hospitals are submitting material inadequate in amount. With few exceptions, all material has been submitted late. With few exceptions, members of the Editorial Advisory Board have shown no interest in the Journal. The recommendation was therefore made to the Publications Committee that the Editorial Advisory

Board be abolished. This was passed by the Publications Committee.

The services of an expert medical copy-rewriter have been obtained. If material is submitted on schedule, these services will enable the material to be put into shape to enable us to have an outstanding journal. We cannot do anything, however, when material is submitted one month after the deadline.

Respectfully submitted,
A. H. CLAGETT, JR.
Editor

COMMITTEE ON PUBLIC LAWS

The Committee on Public Laws has concerned itself with the following subjects during the past year:

THE FORAND BILL

This Bill-HR 9467 — was to provide government hospital and surgical care for about 13,000,000 social security claimants by amending the social security act. To supplement the other approaches in Delaware calculated to express medicine's opposition to this Bill, the members of the Committee on Public Laws contacted the director and the members of the lay boards of all the hospitals in the state urging the lay members of these boards to officially contact our representatives in the Congress stating the reasons why hospitals themselves are opposed to the principles incorporated in this Bill. In addition, representatives of the Society called upon Senators Williams and Frear and Representative Haskell in their Washington offices, in company with state senator John Longbotham of the State Labor Commission. The Committee is grateful to Messrs. Williams, Frear, and Haskell for their promised cooperation, and to Senator Longbotham for his help in analysing the impact of the Forand bill in Delaware and contributing this information to our efforts.

MEDICAL-OPTOMETRIC RELATIONS

Subsequent to the Supreme Court of Delaware confirming a decision of the Court of Chancery that Civil Court in this state has no jurisdiction in the enforcement of the optometric code, Senate Bill 274 was introduced and subsequently passed by the State Senate. The purpose of this was to extend the jurisdiction of the Court of Chancery to include enforcement of the optometric code and to provide the Board of Optometric Examiners with the right to apply for such relief as deemed necessary, without penalty and at state expense. This legislation was vigorously opposed in the House for reasons stated in a letter to the Republican caucus of the General Assembly signed by John B. Baker, M.D., President of the State Society. Information furnished Representative H. Clifford Clark was kindly presented by him to the Democratic caucus with obvious success. In addition, cooperation was obtained through the Delaware State Bar Association in the preparation of a substitute bill which was to replace Senate Bill 274 in the event that the bill could not be kept in committee. The purpose of the substitute bill was to give all professions the same recourse in the Court of Chancery as 274 asked for optometrists alone. The subsequent failure of Senate Bill 274 to come before the House, however, made it unnecessary to submit the substitute bill during this session of the legislature.

The Committee on Public Laws submitted in a separate communication to the Council a detailed

analysis of the stand which medicine should take in the current suit between the Delaware State Board of Examiners of Optometry and Edwin Kulwald, optician. The essence of this recommendation was that while it was felt that the medical society should avoid active participation in the suit, from the point of view of legal entanglements, every possible effort should be made to show the Court and the public medicine's unmistakable position in regard to the utilization of technical aides and the unacceptance by medicine of any legal limitation on medicine by fringe practitioners.

To pursue this purpose, the Committee requests the House of Delegates' authorization for the following course:

- 1. That the state society *not* ask the Court's permission to enter this case directly.
- 2. That the Society, through the Committee on Public Laws, offer the defense counsel every assistance in the preparation of his case.
- 3. That to implement paragraph 2 above, the Committee be authorized to provide such expert witnesses as may seem advisable, and, if necessary, assist in the financing of these appearances subject to the approval of the Council in specific instances.

PROPOSED CHANGES IN THE MEDICAL PRACTICE ACT

The Committee on Public Laws was instructed by Dr. Baker to meet with the Medical Practice Act, which apparently Judge Terry and Dr. Washburn thought needed changing. My latest report from Dr. Wallace Johnson, a member of the Medical Council, is that Judge Terry is not yet ready to make a recommendation in this connection. It is impossible, therefore, for the Committee on Public Laws to make a report and recommendation to the Council of the Society on this topic.

FUTURE LEGISLATION

A belated and unsuccessful attempt was made to have included in the platform of the major political parties in Delaware the abolition of the office of the coroner in this state. The Committee did support, against overwhelming pressure, Senator McCullough's bill to eliminate the office. We were not successful in securing its passage.

The Committee has deferred action this year on its proposed bills defining the place of the aide in medical practice and raising the standards of scientific education for all licenses to heal. Private conferences with their friends in the General Assembly have convinced us that these bills might survive either the Legislature's preoccupation with the state's financial problems or the pressure of the optometry group, but not both. It has seemed wiser not to enter a fight that we probably would not win, but to defer action until the state's budget crisis is less acute.

The Committee has enjoyed support from both sides of the State House of Representatives, and is grateful to those who have helped. We especially commend Mr. H. Clifford Clark of Kenton and Mrs. Margaret R. Manning of Wilmington, members of the House Committee on Public Health, for their interest in the public welfare.

Respectfully submitted,
WILLIAM O. LAMOTTE, M.D.
Chairman

REPORT OF THE MANAGING EDITOR
AND BUSINESS MANAGER

Conclusion of operations, July, 1957, Issue to
Conclusion of operations, July 1958, Issue
A. CHECKING ACCOUNT
Balance in Checking Account at conclusion of operations, July, 1957, Issue. \$ 5,837.62

RECEIPTS

Advertising	\$24,121.56
Subscriptions	1,339.54
Single Copy Sales	19.76
Royalties	.53
Roster Sales	16.00
SMJAB-Share Profits	707.01
Interest	87.50
*Reimbursed conference expense (see below)	211.76
	\$26,503.66

DISBURSEMENTS

Printing and Mailing	
Journal	\$17,901.44
Salaries, Excluding Taxes withheld	3,484.60
Taxes, including Taxes withheld	339.30
Addressing of Journal	120.00
Copyrights	48.00
Rights, Medical Cartoons	100.00
Special printing (Indices & Inserts)	187.18
Plates	77.34
Insurance	92.85
Stationery & Supplies	102.45
Editing of Seminar Transcript	65.00
Legal Column	75.00
Postage Account	10.00
*Conference Expense (Reimbursed-see above)	211.76
	22,814.92

Balance After Operations, July, 1958, Issue	9,526.36
Balance in Account Conclusion of Operations, July, 1958, Issue	9,526.36

Profit from Operations \$ 3,688.74

B. SAVINGS ACCOUNTS

Wilmington Savings Fund Society	
Balance, August 1, 1957	\$ 3,626.53
Interest	117.84
Balance, August 1, 1958	3,744.37
Wilmington Trust Company	
Balance, August 1, 1957	\$ 1,748.06
Interest	17.48
Balance, August 1, 1958	1,765.54
Balance in Savings Accounts	\$ 5,509.91

C. WAR BONDS

U. S. War Bonds,	
Purchased Dec. 10, 1942 @ \$ 3,502.38	
Balance, August 1, 1958	\$ 3,502.38
Total, Accounts A, B, and C.	\$18,538.65

Respectfully submitted,
M. A. TARUMIANZ, M.D.
Managing Editor
LAWRENCE C. MORRIS, JR.
Business Manager

WOMAN'S AUXILIARY TO THE
MEDICAL SOCIETY OF DELAWARE
REPORT OF THE PRESIDENT
1957-1958

The year 1957-58 has been a busy one and, I feel, a fruitful one for the Woman's Auxiliary to the Medical Society of Delaware. Upon returning from the planning conference in October 1957, I forwarded to each county president the directives as received from the National Auxiliary to the American Medical Association. They were centered around the theme, "Health is a joint endeavor." We were requested to emphasize recruitment in all medically related fields, assist in the AMEF program, continue our efforts with the distribution of TODAY'S HEALTH, and cooperate with mental health and safety agencies. We were also asked to keep informed on all legislature pertinent to the medical profession. That these objectives received the full support of our three county auxiliaries is evidenced by the reports of the county presidents and of the state chairmen.

The recruitment committee, by contacting all state high schools including parochial and private, received 27 applications for nurses' scholarships, four from Kent, nine from Sussex, and thirteen from New Castle. Seven students were awarded \$150 each. Applications were also processed in behalf of the Wilmington Rotary Club, who awarded nine scholarships of \$350 each. This brings the number of scholarships awarded by the auxiliary since the project began in 1950 to a total of 29. We feel that in addition to benefiting the students and the medical profession our scholarship program is good public relations at work.

We are especially pleased with the gain in our AMEF aid. In May our state chairman forwarded to the national office a check for \$677.05. This represents a gain of \$253.00 over the previous year, causing us to rank eleventh in the national list with an average of over three dollars per member. We feel that progress has been made, not only in a monetary sense, but also in creating an awareness of the need for such auxiliary participation in the AMEF program.

The chairman of TODAY'S HEALTH and her committee have worked most diligently to obtain ninety-one (91) subscriptions. Inasmuch as this magazine is published by the American Medical Association and depends to a large extent upon the medical auxiliaries for its distribution, the Delaware Auxiliary has place in its minutes a recommendation that each member be billed for a one year subscription when billed for annual dues.

Several projects pertaining to mental health have received the ardent interest and assistance of our auxiliary members. The re-activating of the library at the Delaware State Hospital was one such project. This necessitated many hours of work collecting and cataloguing books. The members also assisted with the annual fair given for the patients at the State Hospital and gifts at holiday times were solicited for the children at Stockley by the auxiliary members in the lower counties. Several of our auxiliary members are on the active volunteer staff of the Mental Health Agency and have assisted to a great extent in the Agency's educational program.

The state legislative chairman has forwarded to the county auxiliaries all national communiques about the pending bills relative to the medical profession in order that we might have an informed membership. Mr. Harry Haskell, Delaware's Congressional Representative, was written

on both a county and a state level concerning our opposition to the Forand Bill.

In conjunction with our recruitment program the auxiliary cooperates with Delaware League of Nursing in stimulating interest among the high school students. This is done mostly by the creating of future nurses' clubs. Teas, field trips, speakers for meetings, and transportation have been provided by auxiliary members when needed. This year added emphasis has been given to these high school students on the possibility of laboratory work.

Our membership remains the same as last year, 280 paid members. This is not due to the fact that no new members have been added, but because inactive members have been dropped. Our three counties are completely organized and hold regular meetings. We are also pleased to report that new chairmanships have been added which now enables all county units to function according to national auxiliary directives.

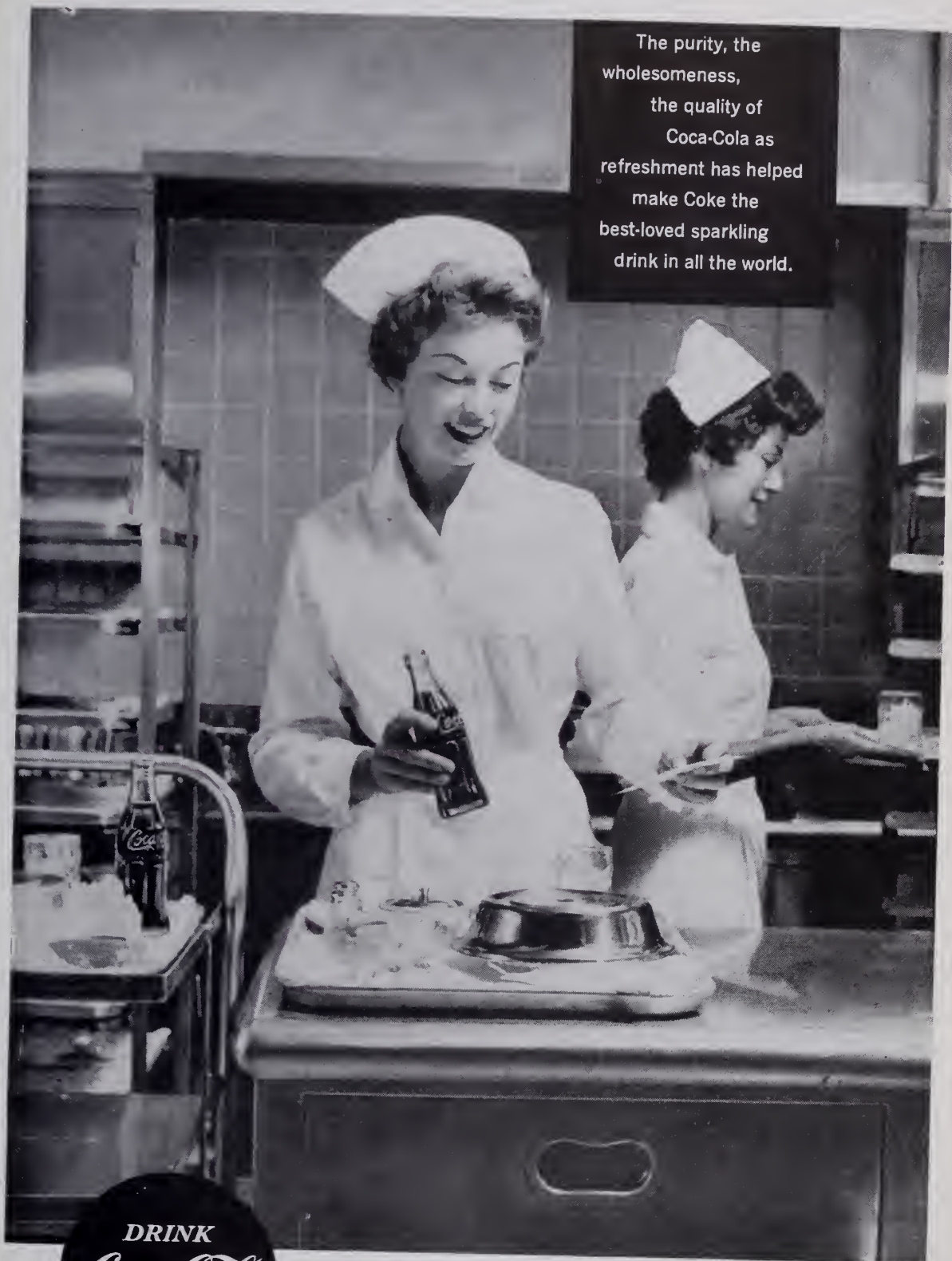
In order to ascertain the interests and activities of our members, the public relations chairman and her committee developed a questionnaire that was sent to all members. The response was most gratifying. When the data was compiled it was found that our membership serves the community in many ways: through Scouting, P. T. A., church organizations, hospital boards, community drives, Red Cross, civil defense, medical auxiliary, and citizen political forums. The amount of time devoted by the Delaware doctor's wife working towards the betterment of her community averages one hundred and fifty hours per year. This compilation was reported along with a regular meeting notice by our publicity chairman to the local newspapers and thus we hope another step forward in good public relations was taken.

Civil defense and safety, in the home and on the highway, both received consideration in our program during the year through the distribution of literature, speakers at our meetings, and the showing of films.

During the past year I presided at three state executive board meetings. I attended several New Castle County Auxiliary meetings and was a guest at a meeting in Sussex county. Approximately 12,500 miles were covered on my trips to the Chicago Planning Conference and to the San Francisco meeting of the American Medical Association. In addition to these trips, I represented Delaware at the New Jersey, New York, and Maryland State Meetings. I have answered all personal correspondence relative to the office of president, and have written two articles for the National Bulletin and one for the Delaware State Medical Journal. In addition to these writings I compiled and forwarded the triplicate twenty page chairman reports, and the five hundred and eight hundred presidential reports required by the National Auxiliary this year, and I gave the oral report at the National Meeting in San Francisco.

During the twenty-nine years that the Woman's Auxiliary to the Medical Society of Delaware has been in existence there have been many accomplishments and much growth. The main objective has been to assist in our capacity as doctors' wives the Medical Society of Delaware in its program for the advancement of medicine and public health. The prospect for future advancement and development of this objective by the Auxiliary is indeed bright, however, such progress can only be made by the efforts of each county auxiliary and by each constituent member.

The purity, the
wholesomeness,
the quality of
Coca-Cola as
refreshment has helped
make Coke the
best-loved sparkling
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Doctors are generally agreed that the best hope of saving lives from cancer is early detection and prompt, proper treatment. Great progress has been made in the last ten years: the saving now of 1 in 3 compared with 1 in 4, as more and more people are seeing their doctors **in time**.

But with present knowledge and existing facilities, it is possible **today** to save **1 in 2** cancer patients. This is the target of the American Cancer Society's professional and public education programs.

The Society offers doctors a variety of free services: **Literature:** two bi-monthly magazines; **Films:** 200 available on loan, including a series of kinescope films covering practically every clinical phase of cancer; **Slides:** (In color) Characteristic early lesions in sites of greatest incidence; **Exhibits:** for medical meetings and conventions, on special aspects of diagnostic and therapeutic problems.

In its public education program, the Society uses every effective communication medium to urge people to have annual health checkups and to go to their doctors promptly at the appearance of a danger signal.

The challenge will be met. As more and more doctors' offices become "cancer detection centers," and as more and more people see their physicians regularly, the closer will come the day when half of our cancer patients will be saved. The know-how for saving the remaining half is still being sought in our research laboratories. Ultimately that challenge, too, will be met.

AMERICAN CANCER SOCIETY



DELAWARE DIVISION, AMERICAN CANCER SOCIETY

1324 Market Street, Wilmington

It has been my privilege to serve as the seventeenth president of the Woman's Auxiliary to the Delaware Medical Society and my tenure of office has been possible only by the cooperation of my executive board and by the moral support tendered to me by my understanding family. To them I express my deepest appreciation.

Respectfully submitted,
HESTER S. THOMAS (MRS. ROGER B.)

COMMITTEE ON ADVISORY TO WOMAN'S AUXILIARY MEDICAL SOCIETY OF DELAWARE

As a group this committee, as in previous years, has been called upon in only several instances. The transportation and housing facilities of the Delaware Medical Auxiliary delegate to the National Auxiliary of the American Medical Association which was held in San Francisco were arranged for and checked. Financial and moral support, and frequent oral advice seemed to be the main order of this committee.

Inasmuch as the Delaware State Medical Auxiliary depends upon yearly dues of one dollar (\$1.00) per member to cover operating expenses of the organization, this committee recommends that a one hundred (\$100.00) yearly stipend be given by the Medical Society of Delaware to the Woman's Auxiliary to assist in operating expenses.

It has been a pleasure working with the Woman's Auxiliary and the members of this committee.

Respectfully submitted,
ROGER B. THOMAS, M.D.
Chairman

REPORT OF THE COMMITTEE ON ALCOHOLISM MEDICAL SOCIETY OF DELAWARE

In Delaware four public institutions care for and treat alcoholics, namely the facilities of the State Board of Corrections, the Delaware State Hospital, the State Welfare Home and Hospital for the Chronically Ill, and the Governor Bacon Health Center. The State Board of Corrections is involved with alcoholic persons who transgress the laws of the State and Nation. The Delaware State Hospital treats alcoholics who are psychotic or too seriously disturbed emotionally to remain in the community. The Mental Hygiene Clinics of the State of Delaware provide outpatient treatment for alcoholic patients. The State Welfare Home and Hospital for the Chronically Ill gives residential care and treatment to alcoholics who are indigent or who otherwise qualify for the services of this institution. The Governor Bacon Health Center through its Alcoholic Rehabilitatin Unit makes available residential care and treatment for alcoholics without frank psychosis.

This report presents data concerning alcoholics treated in Delaware during the fiscal year 1957-58 at three state institutions. The data from the State Welfare Home and Hospital for the Chronically Ill are for the calendar year, January 1 to December 31, 1957.

THE BOARD OF CORRECTIONS, STATE OF DELAWARE

During the fiscal year 1957-58 the Board of Corrections for the State of Delaware made a total of 2,098 commitments on the charge of Drunk and Disorderly. This total represents commitments of 1,963 males and 135 females. There was a total of 633 commitments on the charge of "Driving

Drunk." Committed on this charge were 618 males, 15 females. The number of inmates who participated in the alcoholic treatment program at Delaware Farms was 139. Information is not available on the number of persons involved in the over-all total of 2,731 commitments on the two specific charges relating to the use of alcohol. It is estimated that some 500 persons were convicted of these charges, some being committed repeatedly. Although data is not readily available from the Board of Corrections on the number of commitments in which the use of alcohol was a contributory factor in other misdemeanors and felonies, newspaper reports and other sources indicate that alcoholism is frequently a factor in crime and delinquency.

DELAWARE STATE HOSPITAL

The Delaware State Hospital at Farnhurst, Delaware, during the fiscal year 1957-58 received as first admissions to a psychiatric hospital 40 alcoholic patients who suffered from psychosis (32 males, 8 females.) Ten patients (5 males, 5 females) readmitted to the State Hospital were alcoholics. The total number of alcoholic patient admissions for the past fiscal year was 50 (37 males, 13 females). None of these patients was committed to the Hospital by a court.

In the past fiscal year 49 alcoholic patients (33 males, 16 females) returned to the community on trial visit. Fifty-five alcoholics (48 males, 7 females) were discharged during the fiscal year. One alcoholic patient died in the Hospital during the past year, a 63 year old male whose death was caused by bronchial pneumonia. The statistics for alcoholic patients who left on trial visit or were discharged during the fiscal year include patients admitted to the Hospital in prior years as well as some admitted during 1957-58. At the end of the fiscal year 53 alcoholic patients (44 males, 9 females) remained in residence.

The ages of the alcoholic patients admitted and readmitted to the Delaware State Hospital in 1957-58 ranged from 26 to over 65 years. The greatest number of first admissions and readmissions occurred between the ages 36 to 50, 62 per cent of the total alcoholic admissions falling in this age bracket.

MENTAL HYGIENE CLINICS

During 1957-58 the Mental Hygiene Clinics of the State of Delaware admitted for treatment 15 alcoholics (13 males, 2 females). These patients ranged in age from 22 to 59 years with 9 of them between 30 and 45 years of age. Of these patients 9 (8 males, 1 female) were discharged during the fiscal year. Six of them (5 males, 1 female) were still in treatment at the end of the fiscal year.

THE STATE WELFARE HOME AND HOSPITAL FOR THE CHRONICALLY ILL

The State Welfare Home and Hospital for the Chronically Ill, at Smyrna, Delaware, each year admits a small number of patients diagnosed as alcoholics. During the calendar year (January 1-December 31, 1957) 17 alcoholics (15 males and 2 females) were admitted for care and treatment at this institution. Six of these patients were discharged during the year, three died. Eight remained in residence at the end of the calendar year.

THE GOVERNOR BACON HEALTH CENTER

The Governor Bacon Health Center, at Delaware City, Delaware, during the fiscal year 1957-

58, received as first admissions 89 alcoholic patients (72 males, 17 females). During the period being studied there were 65 readmissions (57 males, 8 females). The total number of admissions and readmissions of alcoholic patients in the Alcoholic Rehabilitation Unit was 154 (129 males, 25 females).

During the fiscal year 159 alcoholic patients (135 males, 24 females) were discharged. Two alcoholic patients (aged 54 and 59 respectively) died during the year. The former died of lobar pneumonia, micro abscesses of the liver, cerebral congestion, and edema. The latter patient's death was caused by cardiac asthma, with chronic alcoholism a contributory cause. At the end of the fiscal year 28 alcoholic patients remained in treatment. Of this number 24 were males, 4 were females.

The fiscal year 1957-58 marked the tenth year of the operation of the Governor Bacon Health Center. Provision for the treatment of "men and women of all ages who suffer from alcoholism or who are drug addicts and who are without frank psychosis, either acute or chronic" was included in the legislative action establishing the Health Center. (Delaware Code Annotated, Title 16, Chapter 53, Subchapter 1, Paragraph 5304.) Since its inception to the close of the fiscal year 1957-58 a total of 1,298 patients (1,141 males, 158 females) have been received as first admissions for treatment of alcoholism. In the same period there have been 796 readmissions (732 males, 64 females) readmitted for treatment of chronic alcoholism.

CONCLUSION

From the above facts it is obvious that the problem of alcohol still remains a serious one in the State of Delaware. Possibly education should be considered the first step in the program to alleviate the problem. The second step would be more intelligent and more effective utilization of the preventive and treatment facilities in the State. For this the cooperation of physicians, members of the Judiciary, clergy, educators, families is necessary. Persons whose drinking has become excessive or otherwise abnormal, should be referred at once for outpatient or residential treatment. Too often the aberrant drinking behavior is ignored or at least not given serious attention until the habit has become extremely serious or until the person becomes involved with the police. Intensive treatment when a person given the first indication of becoming a problem drinker undoubtedly would do much to prevent the waste in manpower potential, the suffering and even the tragedy which may result from alcoholism.

M. A. TARUMIANZ, M.D.
Chairman
H. T. MCGUIRE, M.D.
C. J. PRICKETT, M.D.
BRUCE BARNES, M.D.

COMMITTEE ON AMERICAN MEDICAL EDUCATION FOUNDATION 1958

The Committee on the American Medical Education Foundation reports contributions of \$2757.50 for the period January 1, 1958 through August 31, 1958. In accordance with the recommendation of the House of Delegates, expressed at its 1957 meeting, the Committee solicited funds early in 1958. In view of the mediocre response to date, we shall send another mailing before the end of the year.

After careful consideration, the Committee has decided to solicit funds by mail only. While we

realize that this is possibly less productive to the A.M.E.F., we feel that it definitely is more acceptable to the membership of the Society.

The Chairman visited Chicago in February of 1958 to attend the Annual Meeting and Conference of Chairmen of the A.M.E.F. All of the expenses of this trip were borne by the AMA. 100% of the funds donated to the A.M.E.F. continue to be forwarded to the medical schools.

The Committee wishes to express its appreciation to the Central office of the A.M.E.F. for its cooperation and help in supplying literature and advice whenever called upon.

Respectfully submitted,
J. L. FOX, M.D., *Chairman*
J. J. DAVOLOS, M.D.
F. R. EVERETT, M.D.
J. R. KERRIGAN, M.D.
R. L. KLINGEL, M.D.
W. W. LATTOMUS, M.D.
F. O. POOLE, M.D.
S. W. RENNIE, M.D.

REPORT OF COMMITTEE ON DIABETES

The activities of the Committee on Diabetes of the Medical Society of Delaware have been largely involved in assisting members of the American Diabetes Association in Delaware in establishing an affiliate of the A. D. A. In the June meeting of the American Diabetes Association in San Francisco, the Delaware Diabetes Association was approved and is now in being. There are thirteen charter members. It is hoped that there soon will be a larger Delaware membership and that, with this association as a basis for diabetic activities throughout the entire state, cooperating with the Medical Society of Delaware and the Public Health Service, that subsidiary associations of lay diabetic societies will presently be performed. By such means education in diabetes will be carried on both through professional channels and through friends of diabetics and the public generally. Such a program should react to the benefit of all concerned, and certainly is in line with the policies of the Education Committee of the State Society.

Since, at the present time, the Delaware Diabetes Association is without funds and since it is important to carry on diabetes detection this coming November, and in line with previous actions of the Medical Society of Delaware, the Committee requests immediate appropriation not to exceed \$100 for this educational activity for the current year. Diabetes week this year is November 16 to 22.

Respectfully submitted,
LEWIS B. FLINN, M.D., *Chairman*

COMMITTEE ON GRIEVANCE BOARD MEDICAL SOCIETY OF DELAWARE

Mr. President and Members of the House of Delegates:

Your Grievance Board has had nothing to do this year. There have been no cases referred directly to it and none referred from either one of the County Societies.

We hope in this case that no news is good news.

Respectfully submitted,
E. R. MAYERBERG, *Chairman*
BRUCE BARNES
ROGER MURRAY
H. W. SMITH
M. A. TARUMIANZ

REPORT OF COMMITTEE ON MATERNAL AND FETAL MORTALITY

During the year 1957 the total number of live births increased from 11,242 in 1956 to 11,844. There were four maternal deaths. (A maternal death is defined as: The death of any woman dying of any cause whatsoever while pregnant or within 90 days of the termination of the pregnancy, irrespective of the duration of the pregnancy at the time of the termination or the method by which it was terminated.) This definition has been used in arriving at our statistics and is being used thru out the country by State Committees on maternal and infant mortality.

Therefore please mention pregnancy under "other significant conditions" when completing a death certificate on any female if such condition has existed within a period of 90 days of death regardless of cause of death.

The four maternal deaths in 1957 shall be designated as A, B, C, and D.

Case A: Age 35, Classified: Direct obstetric non-preventable. Factors of responsibility are assigned to patient herself and her family. This patient had septic miscarriage and died of septicemia following miscarriage. Patient did not present herself for treatment until too late.

Case B: Age 41, Classified: Direct obstetric non-preventable. Gravida XVI weight 300 pounds. Patient died of spontaneous rupture of uterus during normal labor. Catastrophic accident. Patient expired despite heroic measures. This is a hemorrhagic death.

Case C: Age 43, Information incomplete at this time.

Case D: Age 31, Classified: Direct obstetric non-preventable. Gravida IX, para VII, weight 275 pounds. This patient died of cardio-vascular collapse due to blood loss and septic incomplete abortion.

Most frequent causes of maternal death in Delaware as elsewhere are hemorrhage and infection. We must continue our vigilance against the most frequent causes of maternal deaths as they exist throughout the United States. i.e. 1—Hemorrhage 2—Infection, 3—Toxemia, 4—Anesthesia.

Recommendation:

- I Continued careful natal care.
- II One source of bleeding during delivery which can be greatly decreased, is that occurring during the fourth stage of labor. More attention must be given to uterine care to prevent relaxation and subsequent bleeding.
- III To prevent possible aspiration during obstetric anesthesia maternity patients should be instructed to avoid all solid foods once labor begins.

Respectfully submitted,
F. S. HASSLER, M.D., *Chairman*

REPORT ON INFANT MORTALITY—1957

The committee on Maternal and Infant Mortality has continued to study the causes of death of those infants who died within the first seven days of life. During 1957, 11,844 babies were born, and 177 of them expired in the first week, giving

a rate of 14.9/1000 live births. This is comparable to 14.4 in 1955 and 14.5 in 1956.

STUDY SOURCES

The hospital charts of the infants and their mothers were reviewed and a form similar to that used in Philadelphia was filled in by members of the committee. This material is summarized in Tables I and II.

COMMENTS

When the statistics listed in Tables I and II are compared to those of last year, there is little significant change. The Delaware Hospital is the only hospital that has continued a steady downward trend in the rate of deaths in the first seven days of life. If only the viable babies, those weighing more than 1000 Gms. are considered, the Kent General Hospital and the Milford Memorial Hospital have consistently reduced their rates. None of these are statistically valid reductions, however.

The rise in the rate in home deliveries is interesting. In 1954, there were 507 home deliveries, compared to 253 in 1957. The total number of births in Delaware increased from 9,736 in 1954 to 11,844 in 1957. In 1954 there were four deaths, for a rate of 7.9/1000 L.B., and in 1957 there were ten deaths, for a rate of 39.5/1000 L.B. This higher death rate would seem to infer that home deliveries are not done as well as they were a few years ago. This may be true, but a more detailed perusal of the cases shows a striking lack in prenatal care. Of the ten patients in 1957, seven had no prenatal care, two had begun prenatal care within a month of delivery, and we have no information about the tenth. Eight of these persons were colored. Only one of the deliveries was done by a mid-wife. The rest were delivered at home by the family or in an automobile on the way to the hospital.

Inadequate or complete lack of prenatal care was a factor involved in 36 of the 177 deaths, about 20%.

RECOMMENDATIONS

1. That a campaign be started to call attention to the importance of early and regular prenatal care. The State Board of Health should be consulted in this regard.

2. Beginning with January 1958, a form has been sent to the physician responsible for babies who died within the first seven days of life. The doctor is requested to fill in the information and return the form to the Delaware Medical Society office. It has been suggested that the forms be made available at each of the hospitals so that the doctor can fill in the information at the time of the death and send it to the medical society. If this form is not received by the medical society within two months, another form will be mailed directly to the physician.

3. One member of this committee attended a regional Conference on Pre-natal Mortality and Morbidity Problems, held by the A.M.A. Committee on Maternal and Child Care. An outline of the Delaware neonatal mortality study was used as an example of a state-wide program in the background material distributed prior to this conference. Many facets of these problems were discussed-varying from basic research to the mechanics of collecting statistical data. The problem of whether or not the collection of data should be standardized, so that studies in various communi-

TABLE I

	Delaware	Wilmington General	Memorial	St. Francis	Riverside	Kent General	Milford Memorial	Beebe	Nanticoke	U.S.A.F. Dover	Home	Total
Total live births	2993	2245	1790	907	180	1187	974	388	480	447	253	11,844
Deaths in 1st 7 days	36	45	28	13	5	9	18	8	9	3	3	177
Corrected deaths in 1st 7 days	34	41	27	13	6	10	17	7	9	3	10	177
Deaths/1000 L.B. in 1st 7 days	11.4	17.8	15.1	14.3	33.3	8.4	17.4	18.1	18.8	6.7	39.5	14.9
Deaths/1000 L.B. in 1st 24 hrs.	7.3	13.4	9.5	12.1	26.8	6.7	14.4	7.7	8.3	6.7	39.5	10.1
Deaths in 1st 7 da. wt. over 1000 Gms.	27	34	15	7	2	6	8	4	7	2	4	116
Deaths/1000 L.B. 1st 7 days												
wt. over 1000 Gms.	9.0	15.1	8.4	7.7	11.1	5.1	8.2	10.3	14.6	4.5	15.8	9.8
% previable												
500-1000 Gms.	25	24.4	44.4	46.2	60	33.3	53	42.8	22.3	33.3	50	
% viable prematures												
1000-2500 Gms.	44.5	57.8	44.4	38.4	20	44.4	35.3	57.2	44.4	33.3	37.5	
% full term												
over 2500 Gms.	30.5	17.8	11.2	15.4	20	22.3	11.7	0	33.3	33.4	12.5	

Corrections: Delaware—Minus 1—Transferred from Kent General—expired a few minutes after arrival
 Minus 1—Transferred from Riverside—difficult delivery—intraventricular hemorrhage
 Wilmington General—Minus 4—Delivered at home
 Memorial—Minus 1—Delivered on way to hospital
 Milford Memorial—Minus 1—Delivered on way to hospital
 Beebe—Minus 1—Delivered at home by mid-wife

TABLE II

	Delaware	Wilmington General	Memorial	St. Francis	Riverside	Kent General	Milford Memorial	Beebe	Nanticoke	U.S.A.F. Dover	Home	Total
Undetermined	16	22	15	7	1	5	11	5	5	2	3	92
Hyaline Membrane	2	7	6	2	1							18
Congenital Anomaly	7	4	3	1		2	2	1	2			22
Intrauterine Anoxia	5	3	3	2	3	1	3		1	1		22
Intracranial												
Hemorrhage	3	4					2	2	1			12
Erythroblastosis		2		1								3
Adrenal Hemorrhage						1						1
Intrapulmonary												
Hemorrhage	1		1									2
Bronchopneumonia	1	1										2
Aspiration												
Pneumonia	1	1										2
Sepsis-Shigella		1										1
Total	36	45	28	13	5	9	18	8	9	3	3	177
% Undetermined	44.5	48.9	53.6	53.8	20	55.6	55.6	62.5	55.6	66.7	100	
Autopsies	20	22	12	4	1	7	5	2	6	1	0	80
% Autopsies	55.6	48.9	42.8	30.8	20	77.7	27.8	25	66.7	33.3	0	45.2

ties can be compared was not solved, but the general opinion was that comparison of one hospital or community with another is not the basic purpose. The main objective is to get each hospital group and each individual doctor to examine the causes for the deaths to determine specific needs for improvement in obstetrical and pediatric care. The members of this committee hope that this annual report may be a stimulus for reviewing techniques, equipment and nursing care.

4. With little added effort, since the mechanics of collecting information have been fairly well worked out, this study could be extended to include all deaths occurring within the first 28 days of life.

SUMMARY

The 177 infant deaths which occurred during the first seven days of life have been reviewed. The preventable deaths were discussed and comments made concerning the statistical data. Recommendations were made.

REPORT OF COMMITTEE ON MEDICO-LEGAL AFFAIRS

The Committee on Medico-Legal Affairs, together with its counterpart from the Delaware Bar Association, presented the Third Annual Medico-Legal Symposium at the Alfred I. duPont

Institute on Sunday, April 27, 1958. The facilities of the Institute were made available to the combined Committee through the courtesy of Mrs. Alfred I. duPont and Alfred R. Shands, Jr., M.D., Director of the Alfred I. Institute.

Co-chairmen of the meeting were the Honorable Daniel L. Herrmann, chairman of the Medico-Legal Committee of the Delaware Bar Association and Philip D. Gordy, M.D., chairman of the Medico-Legal Committee of the Delaware State Medical Society.

The group was welcomed by Dr. Alfred R. Shands, Jr., Director of the Alfred I. duPont Institute; and opening remarks were then presented by H. Albert Young, Esq., President, Delaware Bar Association, and John B. Baker, M.D., President of the Medical Society of Delaware.

The Honorable Charles L. Terry, Jr., President Judge of the Superior Court of the state of Delaware, then presented an address on "The Doctor Witness."

A trial tactics demonstration was then presented with a presentation centering around a case of whiplash injury. A team of experts from New York City presented this demonstration.

The afternoon program consisted of the film, "The Doctor Defendant" following which, a panel and floor discussion took place moderated by James T. Metzger, M.D.

It was felt that the Third Annual Medico-Legal Symposium had been eminently successful in again bringing together the medical and legal professions over problems of mutual interest and importance. The present plans are for continuation of the Symposia on an annual basis.

A review of the financial picture revealed a balance from the previous seminar of \$170.97, total disbursements for the 1958 Symposium were \$610.22 receipts from the Symposium were \$572.75 leaving a balance of \$133.50 as a cash balance.

The Committee wishes to thank all of those whose efforts resulted in the eminently successful Third Annual Medico-Legal Symposium.

Respectfully submitted,
PHILIP D. GORDY, M.D., *Chairman*
September 24, 1958

Joint Committee on Medico Legal Affairs
of the Medical Society of Delaware
and The Delaware Bar Association
Wilmington, Delaware

Gentlemen:

We have examined the cash records of the Joint Committee on Medico-Legal Affairs of the Medical Society of Delaware and the Delaware Bar Association for the period June 1, 1957 to May 31, 1958.

Recorded receipts were traced to deposits in bank and canceled checks were compared with check stubs. Cash in bank at May 31, 1958 was confirmed direct to us by the Farmers Bank and was reconciled with the checkbook balance at that date.

In our opinion, premised on the scope of this examination, the attached statement presents fairly the cash position of the Joint Committee on Medico-Legal Affairs of the Medical Society of Delaware and the Delaware Bar Association at May 31, 1958 and the results of its cash transactions for the period indicated.

Very truly yours,
HAGGERTY & HAGGERTY
Certified Public Accountants

JOINT COMMITTEE ON MEDICO-LEGAL
AFFAIRS

Statement of Cash Receipts and Disbursements
For the Period June 1, 1957 to May 31, 1958

Balance, June 1, 1957.....	\$170.97
RECEIPTS:	
Legal symposium	572.75
	743.72
DISBURSEMENTS:	
Luncheon	\$295.00
Guest speakers	136.77
Printing and stationery	56.75
Registration	30.00
	518.52
Balance, May 31, 1958	
	\$225.20

COMMITTEE ON MILITARY AND
VETERANS AFFAIRS

Under the supervision of the Committee on Military and Veterans Affairs, and with the co-operation of the ad hoc Committee on Fees for Medicare and the Veterans Administration, a new fee schedule has been submitted to the Veterans Administration, designed to bring fees for VA patients nearer to the level of Medicare fees, which have been found acceptable both to the government and to the medical profession. At this time, approval of the schedule has been implied but not officially granted by the Veterans Administration.

Our Committee last year recommended to the House of Delegates that investigation of an intermediary type contract be undertaken. In the interim, the Veterans Administration has revised its procedures so that all payments for medical care are made through the local Veterans Administration in Wilmington. This has seemed to us to accomplish the desired effect of local administration, while avoiding the complications of fourth party intervention. Consequently, no action has been taken to change the type of contract.

When official action is received on the new schedule, each member of the Society will receive a copy. Meanwhile, the Committee points out that each physician in Delaware may treat service-connected conditions at the expense of the Veterans Administration, provided that this care is approved by the VA before treatment is begun.

Respectfully submitted,
CHARLES F. RICHARDS, M.D., *Chairman*

COMMITTEE ON MEDICARE
ADJUDICATION
MEDICAL SOCIETY OF DELAWARE

Mr. President and Members of the House of Delegates:

Your Committee on Medicare Adjudication has had several cases this year. We are giving a summary of them without mention of names, giving largely the type of case and our disposition. All the records are in the hands of the Executive Secretary, Mr. Lawrence C. Morris, Jr., and you may see them upon request.

1. Request from surgeon for authorization of fee not included in schedule—approved by Committee—Accepted by ODMC.

2. Request from surgeon for authorization of laceration repair—approved by Committee—accepted by ODMC.

3. Request from surgeon for authorization of laceration repair—approved by Committee—accepted by ODMC.

4. Request from surgeon for authorization of fee for muscle biopsy, not included in Schedule—approved by Committee—refused by ODMC; diagnosis was chronic disease for which no acute exacerbation was shown, making item non-payable.

5. Request from obstetrician for post-surgical complications beyond the ordinary—approved by Committee—accepted by ODMC.

6. Request from surgeon for authorization of laceration repair—approved by Committee—accepted by ODMC.

7. Request from ophthalmologist for authorization of fee for surgery not adequately covered by schedule—approved by Committee—accepted by ODMC.

8. Request from surgeon for authorization of fee for surgery not covered by Schedule of Allowances—approved by Committee—rejected by ODMC; condition was ruled chronic in absence of evidence of acute exacerbations.

9. Request from surgeon for authorization of laceration repair—approved by Committee—accepted by ODMC.

10. Request from surgeon for authorization of laceration repair—approved by Committee—accepted by ODMC.

11. Request from general practitioner for increase in obstetrical fee for complications of pregnancy—approved by Committee—accepted by ODMC.

12. Request from surgeon for approval of \$300.00 fee for surgery not included in Schedule of Allowances. Committee felt this fee not inherently unreasonable but incompatible with the income level of the Medicare patient. Committee recommended reduction from \$300.00 to \$200.00. Recommendation accepted by ODMC.

13. Request from general practitioner for increase in obstetrical fee for extra time spent with patient due to non-medical considerations in the patient's personal situation. Committee ruled this was not in accordance with local custom in the absence of medical complications, particularly with regard to a multipara—ruling accepted by ODMC.

14. Request from neuro-surgeon for fee beyond that listed in the Schedule of Allowances for a specific procedure. Fee voluntarily reduced upon neuro-surgeon's learning of Scheduled fee. Case therefore did not result in Committee recommendation.

15. Request from surgeon for fee beyond that listed in the Schedule of Allowances for specific procedure. Fee reduced voluntarily by surgeon upon learning of fee listed in Schedule of Allowances. Request did not result in Committee recommendation.

16. Request from obstetrician for \$296.00 fee for one month's prenatal care and delivery complicated by transfusion reaction, false labor, nephritis and anemia. Request necessitated by duplication of time items. Committee felt fee justifiable in other circumstances, not in accord with local practice regarding patients of the income group of the average Medicare Dependent. Committee recommended reduction of fee to \$191.00. Definite action of ODMC not received at this time.

Several cases have been received by the Committee in which no fee has been specified by the

physician submitting the claim. In each of these cases, the physician has asked that the Committee set a fee for work done. This is not within the sphere of the Committee on Medicare Adjudication, and these cases have not resulted in reports. In each case they have been referred back with explanation that the proper fee is the physician's normal fee or the fee specified in the Schedule of Allowances, whichever is less. The physician has been informed of his right to request adjudication if he considers the schedule of fee to be inadequate.

One case has been submitted of failure of ODMC to pay a hospital's claim after having paid the claim of the physician for the same case. It was pointed out that adjudication of hospital claims is not within the sphere of this Committee. It was further pointed out that rejection of the claim was predicated upon the hospital's listing of a chronic diagnosis without listing the acute exacerbations that made the case payable under Medicare. The hospital was advised to re-submit the claim with proper listing of these exacerbations. The Committee has heard nothing further from this case, and assumes that the report was re-submitted and paid.

SUMMARY

Sixteen cases within the jurisdiction of this Committee have been submitted since the Committee's last report. Eight of these were handled by the presently constituted Committee. Ten cases were approved by the Committee and accepted by ODMC. Two were approved by the Committee and refused by ODMC on the basis of non-payability of the diagnosis. In two cases, the fee requested by the physician was recommended for reduction by the Committee on the basis of its being higher than normal in the community for patients of the income level of the Medicare Dependent. In two cases, the fees were voluntarily reduced by the physicians involved upon learning that they were higher than those listed in the Schedule of Allowances.

Several cases were received that were beyond the jurisdiction of this Committee. The report should urge physicians to realize that it cannot assign fees to procedures, but can only pass upon the reasonableness and compatibility with the general level of Medicare fees of charges submitted by physicians.

Your Committee is quite concerned about the whole Medicare situation. As you know Congress debated whether or not to continue the Medicare service. Some of the Senators seem to think that the families of the service men could receive all of the attention necessary in Army hospitals and in other government institutions without having the Medicare program. They claim that it is too expensive and they want it entirely abolished. That has not been done up to now but there has been marked curtailment in the appropriation. There will be a twenty percent decrease. The Kent County doctors will feel this decrease more than the doctors in the other parts of the state because of the large government installation there.

It is possible that the doctors themselves throughout the country are responsible for the attitude of the Congress and of the Secretary of Health and Welfare. It has been our observation that there is a tendency for some of the doctors not to do anything wrong, but to squeeze the last penny out of these cases that they possibly can. In fact some of their fees are higher than they would get in private practice. If that attitude is continued the pro-

gram will be too expensive for the government and it will eventually be discontinued.

We recommend to those who have occasion to use Medicare service to do exactly as if they were handling private patients showing them all consideration in particular reference to their financial standing.

"Medicare officials, after another look at the account books, see the possibility of a shutdown of the civilian phase of the program early in 1959. The reason is relatively simple: the \$72 million appropriated by Congress for the fiscal year will not be adequate. And Senate and House conferees agree that the armed forces should not spend more than that amount."

Respectfully submitted,

E. R. MAYERBERG, *Chairman*
Medicare Adjudication

L. B. FLINN

O. A. JAMES

W. F. PRESTON

H. W. SMITH

G. M. VANVALKENBURGH

R. O. Y. WARREN

REPORT OF THE COMMITTEE ON MEDICAL SERVICE AND PUBLIC RELATIONS

The Committee on Medical Service and Public Relations has concerned itself with four major projects during the year past.

Individual health information cards to be provided by physicians to the lay public are in preparation. These are designed primarily for use in disaster or emergency situations, and contain information on the identity and medical history of the patient, together with the family physician's name. These cards will be printed in large quantity and samples mailed to each member of the Society. Members who request additional quantities for distribution to their patients will receive them at no cost.

The Committee has in preparation a series of newspaper columns to be offered without charge to each newspaper in the state. We anticipate that these will appeal primarily to the weekly newspapers, which have an estimated readership of 175,000 in Delaware. This column will appear under the authorship of "Members of the Medical Society of Delaware". They will be evaluated for accuracy before dissemination, and will have been rewritten and edited by a single individual to insure continuity of style. Several physicians have furnished material for columns, and others have undertaken to do so. The Committee earnestly solicits the help of all Delaware doctors in providing material to be used in this project. We are interspersing information about medicine in Delaware and in the country with strictly technical material written for the public, and would welcome material from any physician who has a subject he feels should be discussed through this medium.

The Committee is planning, with the approval of the Council, a series of sessions on the practice of the art and business of medicine for new physicians. It is our feeling that today's medical education does not adequately prepare the young physician to enter private practice. While scientific preparation is undoubtedly better than it has ever been, the increasingly complex problems of financing an office, and meeting the many legal, tax and other technical obligations has assumed an importance that it has not always had. The Committee

will try to ease these problems for those entering practice.

The Committee is exploring, but has not acted upon, a plan to facilitate the dissemination of clinical news to the press. We feel that the medical profession would benefit from more and better public knowledge of its accomplishments. We are examining the possibilities of establishing in each hospital a contact to spot clinical news as it develops. The Society's office may contact this person periodically and refer such stories as may develop to a subcommittee of the Committee on Medical Service and Public Relations, whose function it will be to evaluate the reports. On recommendation of the subcommittee, these stories will be presented to the news media with competent evaluation of their significance. We anticipate that the media will be willing to cooperate and feel that this project, if it proves practical, will have an extremely good effect upon the public relations of the profession.

PHILOSOPHICAL QUOTE A REMINDER

"There are men and classes of men that stand above the common herd, the soldier, the sailor, the shepherd not infrequently, the artist rarely, rarer still the clergyman, the physician almost as a rule. He is the flower of our civilization and when that stage of man is done with, only to be marveled at in history, he will be thought to have shared but little in the defects of the period and to have most notably exhibited the virtues of the race. Generosity he has, such as is possible only to those who practice an art and never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what is more important. Herculean cheerfulness and courage. So it is that he brings air and cheer into the sick room and often enough, though not as often as he desires, brings healing."

To the few who are willing to prostitute their profession for personal gain, let us direct the epithet which John Randolph of Roanoke once hurled at one of his contemporaries; "So brilliant, yet so corrupt, that like a dead fish by the moonlight, he shines and stinks."

Respectfully submitted,

H. THOMAS MCGUIRE, M.D.

COMMITTEE ON MEDICAL ECONOMICS

The Committee on Medical Economics was appointed largely to investigate the implications of medicine's being represented to the public by commercial enterprises in which physicians have neither control nor adequate representation. We have been particularly concerned with telephone service, especially answering exchanges, which have not always produced the desired results in New Castle County and which have been non-existent in Kent and Sussex counties.

There are three phases to the problem of control of this type of enterprise by the Society. These are desirability, effect upon the tax and charter positions of the Society, and economic feasibility.

It has seemed desirable that physicians exercise direct control over their answering and emergency call service if the remaining two criteria could be met.

From superficial study, it appears that the present charter of the Medical Society of Delaware would authorize activities of this kind. In the event that more thorough work proves that this is not the case, and alteration of the charter, if authorized by the House of Delegates should be a

simple matter. The effect upon the Society's tax position would be somewhat more complex. The present tax exemption is as a "business organization", so requested because it allows the Society to interest itself in legislation. Under this exemption, operation of such a service to the membership is not allowable. This problem could be met by shifting the exemption to "scientific and professional organization". The qualifications for this category provide that no substantial part of the Society's efforts can be in influencing legislation. We have secured a tentative ruling that "substantial" is construed to mean 25% or more. Since 25% of the Society's time is obviously not directed toward legislation, this appears to be a feasible course.

The economic possibility of such a project is a much more complex question, and the Committee has not arrived at a final answer. The Committee thinks that the answer may lie with small, desk-size switchboards recently developed by the telephone company, which might be placed in each of the hospitals in Kent and Sussex county, to be operated by switchboard operators already on duty with additional payment by the Society for the assumption of additional responsibility. Board charges would be quite low, appearing to be about 4-5 dollars per doctor per month. To this must be added line charges, which will vary with the location of the individual office (although there would be no charge for offices within 1/2 mile of the switchboard) and personnel costs. It is the Committee's information, necessarily tentative pending completion of studies by the telephone company, that service could be extended to all or almost all, physicians in this state at charges approximating, or slightly less than those now existing in New Castle County. Technical difficulties with the locater-concentrator, in which the Committee had hopes, point to the use of several decentralized switchboards, rather than one or two major installations serving the state as a whole. The Committee will be able to report more fully upon this project pending the completion of studies now in progress by the telephone company. Meanwhile, we would be interested in any comments the House of Delegates care to contribute.

Respectfully submitted,
LESLIE W. WHITNEY, M.D., *Chairman*

VIRUS LAB MAJORITY REPORT

Mr. President and Delegates:

It gives me great pleasure to present the majority report of the Committee on the Virological Diagnostic Facility for our State. The members of the Committee appointed by Dr. John B. Baker are as follows:

DR. GEORGE J. BOINES, *Chairman*
DR. JOHN B. BAKER
DR. E. M. BOHAN
DR. L. B. FLINN
DR. F. I. HUDSON
DR. L. P. LANG
DR. C. LEVY
DR. ROGER MURRAY
DR. O. J. POLLAK
DR. A. TORMET
DR. M. A. CLARK, D.V.M., *Advisor*
DR. J. C. KAKAVAS, Ph.D., *Advisor*

The Committee met on January 17, 1958 and after considerable discussion "it was agreed that no publicity concerning this project should be issued until the plans are more firm. It was agreed however, that Dr. Boines be empowered in his

fund-raising activities to state that this committee is in favor of such a laboratory, provided that adequate financing is available". A sub-committee was appointed to locate a site for this virological laboratory; this Committee reported that the Wilmington General Hospital agreed to place it on the ground floor of the Doris Memorial Unit on condition that a 3 year budget of \$60,000 was made available for its maintenance and operation at no expense to the hospital. The State Board of Health has also offered space at the Tallman Building at the Bissell Hospital under the same conditions. In the meantime I have contacted a few sources for funds and thus far \$31,750 has been assured.

On February 27, 1958 a sub-committee visited the USPHS Virus Diagnostic Laboratory at Bethesda, Maryland. Dr. John P. Utz, virologist in charge, was very courteous, showed us their set-up and explained the practicability of the commercially available tissue cultures. He stated that in his opinion, a viral diagnostic laboratory is an important adjunct to medical practice and would become increasingly necessary in the practice of medicine. This same opinion was expressed by Dr. J. C. Wilt, virologist at the University of Manitoba whom I visited last April.

Letters and official actions favoring the establishment of such a laboratory have been recorded from the following:

The Delaware Chapter of the American Academy of General Practice
The Medical Staff and Medical Board of the Wilmington General Hospital
The Lay Board of the Wilmington General Hospital
The Chiefs of Staff and the Research Committee of the St. Francis Hospital
The Lay Board and Administrator of the St. Francis Hospital
The Sussex County Medical Society
The Beebe Hospital
Dr. A. R. Shands, Jr., Director of the Alfred I. duPont Institute
The Emily P. Bissell Hospital
The Kent General Hospital
The State Board of Health
The Wilmington Board of Health
The Sussex County Chapter of the National Foundation for Infantile Paralysis
The Kent County Chapter of the National Foundation for Infantile Paralysis
The New Castle County Chapter of the National Foundation for Infantile Paralysis.

Neither the Delaware Hospital nor the Memorial Hospital has formally approved or disapproved the establishment of a laboratory in Wilmington. Each hospital has recognized the value of viral diagnostic work.

At the last meeting of the Committee, August 14, 1958, it was reaffirmed by all except one member, Dr. L. Flinn, that Virus Diagnostic Laboratory in Delaware was desirable. Dr. Floyd Hudson, Secretary of the State Board of Health, stated that "if the House of Delegates of the Medical Society recommends establishment of the laboratory, funds will be available".

Before I close I wish to express my appreciation to our Society for appointing this committee last year and to thank the members of this Committee and Mr. Lawrence Morris for their assistance.

At this time I move Mr. President, that this report be accepted and that you accept the Committee's motion which reads:

"The Committee on the Establishment of a Virological Laboratory recommends the establishment of a virus laboratory in the Wilmington area under the supervision of a competent virologist, and that the present Committee be permitted to continue to operate and assist in any way until the laboratory is established".

Respectfully submitted,
GEORGE J. BOINES, M.D., *Chairman*

MINORITY REPORT COMMITTEE ON ESTABLISHMENT OF A VIROLOGICAL LABORATORY

I respectfully submit a minority report to the Council and House of Delegates. I voted against the Committee's recommendation that the Medical Society of Delaware approve or recommend the establishment of a viral diagnostic laboratory for Delaware in the Wilmington area.

My reasons are summarized as follows:

1. If the Medical Society of Delaware should recommend the establishment of a Virus Diagnostic Laboratory it would thereby indicate that the medical profession of Delaware was of the opinion that such a laboratory would provide a service for the community not otherwise available and that the expense and effort involved would be justified. It is my contention that such is not the case. Such a statement by the Medical Society of Delaware would be unfortunate.

2. I have long been actively interested in providing viral diagnostic facilities for Delaware. Methods of diagnosis are now more simple, but the number of known viruses is increasing so rapidly that only a laboratory with wide range of facilities is practical. At the present state of knowledge such a laboratory for this community alone is not realistic.

3. At the first meeting, January 17, of the Committee, it was voted that a laboratory would be nice to have in Delaware if money and other facilities, including a top-flight virologist, were available. Dr. Boines inferred that they were. The Committee suggested that he secure more definite information but not to solicit funds in the name of the Committee or the State Society.

4. On February 27, Dr. Boines and one other member of the Committee and a pathologist and Mr. Morris visited Bethesda, secured certain information from a small in-patient laboratory, and reported this information to the Committee. This report was later circulated in the name of the Committee to solicit funds. The Committee has never yet approved this Bethesda report. It is not realistic. I personally secured opinions from a large number of virologists throughout the country of wide experience, authorities in the field, and presented their opinions to the Committee at its meeting on August 14. I attach that report which I have not published or circulated.

5. I offered a motion at the August 14 meeting that the Committee recommend that a Virus Diagnostic Laboratory not be established at this time but that the facilities available to us in the U. S. Public Health Laboratory in Philadelphia, one of thirty along the Atlantic seaboard be used to better advantage. This motion was not even accepted for a vote.

6. At the August 14 meeting, it was distinctly agreed that funds were not to be solicited in the name of the Committee of the State Society. However, three days later a letter did go out to various organizations over Dr. Boines' signature mention-

ing that the Committee had voted that a Virus Diagnostic Laboratory be established and strongly urging that the organizations to which the letter was sent contribute a specified amount each year. This I strongly object to.

7. I have been asked by the Chairman to present a plan to facilitate services from the Virus Diagnostic Laboratory in Philadelphia. I attach this plan and recommend its adoption subject to change as experience indicates. Certainly it will give us immediate service, far more effective and at far less cost than the establishment of a full-fledged, top-flight Virus Diagnostic Laboratory in Delaware at this time.

L. B. FLINN, M.D.

PRESIDENT BAKER: You have heard the reading of these two reports. The floor is now open for discussion.

DR. BOINES: Mr. Chairman, may I reply to some of those complaints of the minority report?

PRESIDENT BAKER: Yes, you may.

DR. BOINES: Mr. President and Delegates:

As most of you know, Dr. Lewis Flinn and I have been feuding over viruses since 1947. The report of the majority of the committee, however, is not based on personal interest of myself or Dr. Flinn. The members want a virus laboratory established or sponsored by the Medical Society of Delaware because of the facility and the benefits that it will bring to the doctors and to the people of Delaware in making diagnoses of viruses.

I would like to submit the following statement, and I hope you keep in mind, whichever way you vote, you are voting for a new facility in the State of Delaware and you are not voting for me or Dr. Flinn.

I am in agreement with Dr. Flinn that viruses are here to stay, that virus diagnoses are simpler and that the diagnoses can be made earlier and more accurately if the specimens from an acutely ill patient can be processed immediately by a well-equipped laboratory.

In my personal visits to a number of virus laboratories and discussions with virologists, I was impressed by the following information.

Dr. Werner Henle, virologist of the Children's Hospital, Philadelphia, Virus Laboratory, stated "There is no doubt that more virological diagnostic laboratories are needed" and that he would be happy to assist our Society in its efforts.

As far back as 1949 Drs. Sigel, Henle, and McNair Scott of the Children's Hospital in Philadelphia, stated that "The Public Health program, as well as the practice of medicine by the individual physician are not complete without the diagnostic and epidemiologic services of a virus laboratory. The need for the establishment of a special unit for the diagnosis of viral and rickettsial diseases is evident from the observation of recent trends in infectious diseases. The functions of a virus diagnostic laboratory are: (1) aid in the diagnosis of disease in individual patients; (2) aid in determining sources of infection involving single, family or neighborhood cases; (3) aid in the diagnosis of larger outbreaks and epidemics."

Dr. John P. Utz, Director of the Clinical Virus Laboratory at National Institute of Allergy and Infectious Diseases, Bethesda, stated, "In fact, we envision the day when a virus diagnostic laboratory will be an integral part of a clinical pathology department as is the bacteriology laboratory now."

Dr. J. C. Wilt, virologist at the University of Manitoba, emphasized to me that as scientific physicians we owe it to our patients to obtain an accurate and early diagnosis of their virus infections. We can thus avoid using many unnecessary tests and therapeutic agents and at the same time allay the anxiety of the patient and his family as to the cause of the infection. Also emphasized was the importance of early virus diagnosis from the epidemiological angle. Last year, Dr. Wilt's laboratory was able to discover Asiatic Flu cases early, isolate them, and minimize the spread of the disease. Earlier vaccination was made possible in non-infected areas so that an epidemic was avoided. At the present time many infections diagnosed as "fever of unknown etiology" can be solved by virological studies.

The above authorities are clinical virologists who work with patients and have personal experience with the practical aspects of virology.

Dr. Jas. C. Kakavas, bacteriologist and chairman of the department of biological sciences at the University of Delaware has stated that a virus laboratory is essential in daily medical diagnosis of viral diseases and differential diagnosis of patients who appear to have viral infections. A laboratory in the Wilmington area would be readily accessible from all the populated areas within the State of Delaware and also from the neighboring communities of Pennsylvania, New Jersey, and Maryland. Such a laboratory would furnish diagnostic services, epidemiological studies, and research on viral diseases. In a letter to our committee on 7-28-58, Dr. Kakavas stated "I earnestly hope that the members of the committee will approve the establishment of this facility and with their support I am certain that the necessary financing will be forthcoming."

In a letter received from Dr. Charles Benning, Health Commissioner of the Wilmington Department of Health, he wrote, "In accordance with my conviction of the need for the establishment of a virus diagnosis laboratory in Delaware, I wish to go on record as endorsing such a plan. I feel that it is essential for the health and welfare of the people of Delaware that this endeavor be supported."

Dr. Flinn states that we have no specific therapy for viral diseases therefore why diagnose them? By the same token, we should not make any effort to diagnose any disease for which we offer no specific therapy to the patient but we all know their value. Let me emphasize that it has been vividly demonstrated by the Asiatic Flu experience of last winter, that 50% or more of the deaths in these patients were due to *Staphylococcus Aureus* Coagulate positive organisms. These organisms were found sensitive to some of the antibiotics. It was also shown that many patients developed viral myocarditis with fatal results. Thus an early diagnosis of Asiatic Flu (this can be had in 24 hours) would enable the physician to isolate and treat the Staph. infection and also watch carefully for signs of myocardial failure. To another contention that viral diagnoses do not help the patient therefore the patient should not be charged for virus studies, I would like to say that we daily request expensive laboratory tests such as X-rays, electro-encephalograms, cardiograms, and isotope studies, which are negative in their findings but for which the patient has to pay.

On Friday, 9-19-58, Dr. Morris Schaeffer, consultant for the USPHS Communicable Disease Center in Atlanta, Ga., and Medical Director of the Virus Laboratory in Montgomery, Alabama, came to Wilmington at the request of our committee and

the personal efforts of Dr. Floyd Hudson. Dr. Schaeffer stated that it is important to start a virus laboratory in the State even though it is on a modest scale in the beginning, because one should not depend indefinitely on an outside laboratory to carry the load. If a laboratory is already in operation any improvements in testing and research in discovering cures for different viruses will enable the physician to take advantage of this new knowledge immediately for the benefit of his patients. For example, within the next 2-3 years the fluorescent antibody technique for diagnosing viruses will be fully developed.

Dr. Schaeffer sent a letter to Dr. Hudson, a copy of which I received yesterday. Dr. Hudson, do you mind if I read this?

DR. HUDSON: You may read it.

DR. BOINES: This is a copy of a letter to Dr. Hudson:

"Dear Dr. Hudson:

"I was very pleased indeed to have an opportunity of consulting with you and Dr. Boines concerning the development of a virus diagnostic laboratory as a cooperative effort of the State Health Department, the local hospitals, and the university, last week. As I pointed out, the space at the Wilmington General Hospital is not adequate but the space and facilities available at the Bissell Hospital Sanitarium are admirably suited for this endeavor. The willingness of the various groups, including the hospitals and university, to cooperate with the Health Department should facilitate more rapid progress in the development of a good laboratory and it is obvious that there is considerable advantage in having one well organized, adequately functioning laboratory to serve all of the interests in the State than to have several inadequate ones.

"One may question the need for and usefulness of a virus laboratory at this time. While it is true that such a laboratory is fairly expensive to staff and operate, and may not always provide information of life-saving value, there are many other good reasons which support the desirability of having the facilities of such a laboratory available.

"Currently improved techniques are providing more rapid and accurate tests for at least some of the common virus diseases. A virus laboratory can provide important information to the health officer and physician concerning the definitive prevalence of disease. There are quite a number of respiratory, enteric, and CNS infections which cannot be differentiated on a clinical basis and only a competent laboratory can assist in such differential diagnosis. There are a few virus diseases, such as psittacosis and lymphogranuloma venereum which respond to broad spectrum antibiotics and it is expected that others will be added to the treatable group since there are many investigators diligently seeking a suitable chemotherapeutic agent. On the other hand, there are many diseases that should not be treated with antibiotics and this can be avoided when a specific diagnosis is at hand. Those who claim that the laboratory diagnosis of a viral infection is obtained in retrospect, and thus is useless, might be asked whether it is also useless to do a post mortem examination since the patient has expired.

"I feel rather strongly that when at all possible a virus diagnostic laboratory should be available to state health departments and physicians locally, rather than for them to have to depend upon distant facilities to provide such services. The laboratory could start modestly with the minimum equipment and offer a limited number of tests.

There could be gradual expansion of activity as funds and staff can be accumulated.

"While it is unfortunate that the Public Health Service does not have funds to assist you with this project, you can call on us for advice and consultation, technical assistance with difficult specimens, the training of personnel, and for certain diagnostic reagents which are not available commercially. If you should go forward with your plans for developing this laboratory, we should be pleased to have you call on us for any help we may be able to furnish in the categories mentioned.

"Sincerely,
"Morris Schaeffer,
"Medical Director."

The inconvenience, the expense and the time lost in preparing and shipping specimens properly, is a big factor to be considered, not to mention the breakage in transit. The USPHS will cooperate with the State Board of Health in supplying antigens and sera, consultation and teaching facilities for the laboratory and Delaware physicians.

The anticipated laboratory will be the result of the combined efforts of the community, the hospitals, physicians, industry, and the City and State Health Departments.

Now, I have letters to answer all the questions and accusations that Dr. Flinn is making in his report. You can rest assured that they are all misleading or inaccurate.

DR. WASHBURN: Your letters?

DR. BOINES: No, they are not my letters. For instance, the one statement that the last committee said I should not ask for funds and three days later I sent out a letter to that effect. The committee meeting was on the 14th of August and the letter was sent out to the Heart Association and to the Tuberculosis Association. I think the Tuberculosis Association is the one to which he refers. That was sent out on the 25th, and I did not put the name of the Society in jeopardy by saying that the Society is in agreement and therefore we should have the funds. As a matter of fact, the money that we have raised so far has been assured so far, the \$31,750.

As a matter of fact, I made a special effort to let the people know that Dr. Flinn and the Delaware Hospital were opposed to this virus laboratory. In fact, that helped in getting the funds faster. The first paragraph which I wrote was:—and this was on July 25.

"Dear Mr. Evans:

"A committee appointed by the State Medical Society has approved the establishment of a virus diagnostic laboratory in Wilmington on condition that funds be raised to initiate the program. I have been asked as chairman to investigate the availability of funds for this purpose."

That is the authority that I was given by the committee.

Thank you very much, gentlemen. If there are any questions you wish or any other letters you want to see, they are all here, and they are not mine. Unfortunately Dr. Washburn is not involved in this argument on viruses.

PRESIDENT BAKER: Is there further discussion?

DR. TRICKETT: I would like to go back to the original report where Dr. Hudson said funds would be made available to the State Board of Health. If he is going to make the funds available, why are we raising funds? That is the first ques-

tion. Number two is, after you have your laboratory set up, who is going to procure and pay the salary of the virologist?

PRESIDENT BAKER: Dr. Hudson, would you like to answer that?

DR. HUDSON: I would like to clarify this. I read that in the report, but I had to be away and I didn't get the thing changed. I don't believe I was quoted exactly.

I did not, I believe, state that we expected to have funds from the State Board of Health to do this. I said there was no reason why, if the Medical Society wants this laboratory, that there aren't plenty of private sources from which we can get the funds to get the thing going. I believe that was substantially what I said, not the exact words, but that there should be funds in the State to get it going without going to the General Assembly to get funds to get it started, if that is what the Medical Society wants.

Now, what was the other question?

DR. TRICKETT: How are you going to procure a virologist and who is going to pay his salary?

DR. HUDSON: Well, the virologist and the setting up of the laboratory would have to be a detailed function which the committee would have to work out. In other words, they would have to raise the funds to pay for both of them. I want to make the position of the State Board of Health clear at this point. The State Board of Health does not propose to start a virus laboratory or to operate it for the general practitioners in the State unless they want it. They will have to ask for it. The State Board of Health does not do that sort of thing. We have use for such a laboratory ourselves, and if the laboratory is started in Delaware, we will utilize the facilities of that laboratory to perform tests for us so that we can follow the course of any outbreaks of disease, of which the origin or cause is unknown, to determine whether it is viral or not, if possible.

I feel that the State Board of Health would do this and would want to do it. After all, the majority of the members are in the medical and dental professions. Four of them are members of this Society. If the doctors want something, the State Board of Health will go along with them, I am sure, and help them in whatever way they can in what they want to do. If they want this separate laboratory set up and they will utilize it, we will try to subsidize to the extent that we use the facilities out of funds appropriated for our own laboratory operation.

Now, if here are any questions, I would be glad to try to answer them.

PRESIDENT BAKER: Dr. Flinn, would you like to give your reply now?

DR. FLINN: Mr. Chairman and members of the House of Delegates:

The issue seems to be somewhat confused. The question, as I see it, is not whether a virus diagnostic facility is desirable—I don't think there is any question about that—the question is, should we have one in Delaware or, as explicitly stated in the report, in the Wilmington area.

I have long been interested in virus diagnoses, and if somebody would like to give us in Wilmington a top-flight virus diagnostic laboratory on a silver platter, all expenses paid, I would be the first one to welcome it; it would be fun; I would enjoy it. But asking the State Society and the community to finance it is another matter.

In the present state of knowledge virus diagnosis is of main concern in the fields of public health and epidemiology in the field of education. It is of practically no help in the clinical care of a sick patient. The groups, therefore, who should be most interested in such a laboratory are the public health departments and the educational field.

It is of interest to know whether a certain individual has a certain type of virus disease, but it makes no difference whether you get that information 24 hours ahead of some place else. If there were a laboratory in Wilmington, I fail to see how that is any closer for people in Milford or Seaford or Dover than Wilmington at the present is from Philadelphia, and if in Milford or Seaford you must send specimens to Wilmington, I see no extra effort in sending them to Philadelphia. I have no stock in Philadelphia except it is one of the leading virological laboratories along the Atlantic Seaboard. And this is not just my opinion; it happens to be the opinion of a majority of the leaders in virology in the United States as to the importance of virus diagnoses in the care of a patient.

I did not want to take your time, but I have been asked by two individuals in the last ten minutes to read this to you, the report which I made to the August 14 meeting of the committee, which I summarized in my minority report which Dr. Cannon read. I will try to make it as fast as I can. It is as follows:

SUMMARY OF THE PRESENT STATUS OF THE FEASIBILITY OF THE ESTABLISHMENT OF A DIAGNOSTIC VIROLOGICAL LABORATORY IN DELAWARE

You all are, I am sure, by this time quite familiar with the widely publicized Bethesda report. According to various memoranda received from Dr. Boines and Mr. Lawrence Morris, Executive Secretary, on February 27, 1958 representatives of the Medical Society of Delaware and of its Committee on the Establishment of a Virological Diagnostic Facility visited a viral diagnostic laboratory of the United States Public Health Service, located at the National Institutes of Health, Bethesda, Maryland. However, there were only four representatives, Dr. Boines and Dr. Kakavas of this Committee with Mr. Morris as Executive Secretary, and Dr. Cassella, Pathologist at the Wilmington General Hospital, not a member of this Committee. The report presented a summary of information received from John P. Utz, M.D., Chief, Infectious Diseases Service, Laboratory of Clinical Investigation, National Institute of Allergy and Infectious Diseases. Apparently using this report as a basis, organizations and individuals were approached in regard to available space for such a laboratory. Apparently a virologist had also been approached. With the recent publication of this report in the State Medical Journal, although it was not so stated, the inference was plain that the Journal, and perhaps the State Society, approved the establishment of such a laboratory.

All this seems rather unfortunate since certain particulars of this Bethesda report do not seem quite realistic or applicable to the proposed diagnostic laboratory in Delaware. It should be pointed out that Dr. Utz in his laboratory has to do with an in-patient service of some fifty beds, and is not confronted with the many problems involved with virus diagnosis in an entire community. He stated that diagnosis can sometimes be made in fifteen hours; usually, however, after four or five days, and often ten to fourteen days. He further stated that prompt diagnosis is important

to the physician in the clinical care of a patient; and further, that recent methods have made virus diagnosis much simpler and cheaper. Much of this is contrary to the opinion of others more experienced in this field.

A short questionnaire was sent to the following: Dr. Werner Henle, Director of the Virus Diagnostic Laboratory in Children's Hospital of Philadelphia; George K. Hirst, M.D., of the Public Health Research Institute of the City of New York; Daniel Widlock, Ph.D., Assistant Director, Bureau of Laboratories, City of New York, Department of Health; Edwin H. Lennette, M.D., Chief, Viral and Rickettsial Disease Laboratory, California State Department of Health, Berkeley, California; and Dorothy M. Horstmann, M.D., Section of Epidemiology and Preventive Medicine, Yale University School of Medicine. They were all in essential agreement on answers to the following questions: (1) How advantageous would it be to have a virus diagnostic laboratory in Wilmington instead of using the Virus Diagnostic Laboratory in Philadelphia? Answer: No advantage in the present state of virus knowledge. In the future, when more practical developments will have occurred, it probably would be advantageous to have a proper laboratory in Delaware. (2) How important is it in the care of an individual patient to make a rapid virus diagnosis? Answer: Of no importance. No treatment available at present. (3) What method of diagnosis is more practical? It was generally agreed that, in establishing a diagnostic laboratory of this sort, it is far better first to choose the virologist and let him develop a laboratory; and further, it has been found more practical to start first with serological techniques only. Tissue culture, including both HeLa cells and monkey cells; and the use of chick embryo, and also of suckling mice which are necessary for the coxsackie group of viruses, are much more difficult to perform although a quicker result is obtained. (4) Do you agree with Dr. Utz that, by new techniques, diagnosis may be made rapidly, sometimes within fifteen hours? Answer: In a few instances such rapid diagnosis can be made but it is not realistic to suggest this as a basis for a laboratory doing a community service. The usual time is four to ten days. Sometimes only two sera are necessary to make a diagnosis, and in other of the more complicated but not unusual viruses it may be necessary to set up forty or fifty different tubes. On an average the number of different tests made on an individual specimen is four to ten. (5) Should the patient pay for the tests? No one answered yes, several said no, and one referred the answer to the local authorities. (6) Cost — all agreed that the cost was difficult to estimate but agreed that it is high, and higher per patient in a small laboratory. (7) Is it likely that a qualified virologist can be obtained to run a virus diagnostic laboratory full time? All answered no. The virologist must have as his main interest opportunity and facilities for research.

In April, 1958, a panel discussion was held at the meeting of the American College of Physicians, on Viral Diseases. The panel was composed of the following: Yale Kneeland, Jr., M.D., Associate Professor of Medicine, Columbia University College of Physicians and Surgeons; John H. Dingle, M.D., Professor of Preventive Medicine and Associate Professor of Medicine, Western Reserve University School of Medicine; Frank L. Horsfall, M.D., Vice President and Physician-in-Chief, Rockefeller Institute; John R. Paul, M.D., Professor of Medicine; Joseph E. Smadel, M.D., Associate Director, National Institutes of Health.

In answer to the question "How important is rapidity of diagnosis in the clinical management

of a case of virus disease?" Dr. Smadel answered that he has never known of a single instance when the diagnosis was of any aid in treating a specific case. (2) Should the patient pay for the necessary tests? Dr. Smadel answered, emphatically, "No". All the panel agreed.

Now, I didn't know about this until last night—I heard that this was reported on the Audio Digest. I have not heard this recording. It takes about two minutes. Dr. Hall, if you will start it, we will listen to what Dr. Smadel said.

(A tape recording was then played as follows:

"VOICE: Here is a question which is right down Dr. Smadel's alley: The inquirer wants to know how helpful in the care of a particular patient is the service of a virus diagnostic laboratory. In a given case should one use virus diagnosis by chick embryo or tissue culture with the immediate clinical expense? Should expenses of such diagnostic tests be borne by the patient?

"DR. SMADEL: That is a tough one. May I begin by saying I am prejudiced in favor of viral diagnostic work, but I must admit that as far as the individual patient is concerned and as far as the care of that patient during his acute illness by the physician is concerned, that I believe we have never in a single instance really been of any help. Now, if this were the main objective, I would have quit long ago. The virus diagnostic laboratory has a great role in public health and in preventive medicine, but it is unfortunately at this particular stage of relatively little help to a given patient and a given physician.

"All of the virologists know the problem of the physicians and have made great efforts to find rapid results. We may be on the verge in some instances—for example, the throat swabs from patients with influenza, the Russians have been excited in the last couple of years about the presence of what they think are fairly specific inclusions in certain of these smears. The Americans have not yet become excited about this. On the other hand, the Americans have become enthusiastic in the rapid diagnostic procedures which use fluorescent antibodies in a number of instances, and you are familiar with the fact that certain of the smears from throats, etc., where bacterial infections are occurring, that it is possible with fluorescent antibody techniques to identify these organisms as regards at least the group in the streptococcal field within a few minutes.

"Well, now, the virologist has not been idle during the past decade. He is worried about these things and tried to get some techniques to work, but he has never yet done it. I hope he will.

"Should one use tissue culture or chick embryo? The real problem here is like the old story, Gold is where you find it. In the virus isolation business sometimes one technique is better than another, so that one really looks at the patient's history, the material that he has at hand to attempt an isolation from and then chooses several different kinds of hosts which might be the most apt to yield the virus one suspects is there. Sometimes this is tissue culture, sometimes it is chick embryo, sometimes it is suckling mice, and sometimes it is guinea pigs.

"The final question, should the expense of such diagnostic tests be borne by the patient? It is my belief that they should not be because it is my feeling that a patient should be charged directly only for those things which are of help in arriving at a diagnosis for which one can provide some therapeutic help."

(End of tape recording.)

DR. FLINN: Therefore I feel that it is a mistake at this time for this Society to recommend the establishment of a virus diagnostic facility when it will suggest that we should approve of individuals or organizations contributing funds when the patient has little to gain over what we have to offer at the present time. I do feel that our present facility can be improved and can be made more accessible and much more practical in the ways in which we have indicated in the details of the report. What we really need is a courier to go not only to Philadelphia but from hospital to hospital to see that the material is delivered promptly and to follow it up and get the reports. I am all for a virus diagnostic laboratory, but I am not going to suggest to anyone that I think at this time you should give a nickel to it for the benefit of the patients of Delaware.

DR. BOINES: What would Philadelphia charge for those services, do you mind telling us?

DR. FLINN: I don't know, but at the present time one hospital, and for a while another hospital, was attempting to pay its own way, and it was divided on a population basis. I don't know what the figures are. I think the Delaware Hospital contributes about \$2500 a year. I think the Memorial at one time contributed about \$1600. I suppose if we had a courier service, you could get somebody for about \$300 a month perhaps. And if you divide all that up among the hospitals in the State, and maybe you can persuade the health organizations which are really the ones most interested, to contribute something, then I think the over-all cost would be not great.

PRESIDENT BAKER: Dr. Hudson?

DR. HUDSON: I would like the privilege of the floor. I would like to give you some facts that I had gotten from visiting the New York State Virus Laboratory and from talking with Dr. Schaeffer who visited with us on the 19th relative to what we can expect in the next few years in the science of the laboratory diagnosis in virology.

The technique which was mentioned on the tape there of fluorescent antibodies is apparently a very promising one, and much work is being done throughout the country, especially at Montgomery, Alabama. I am told, and I believe, as Dr. Flinn stated, with this particular test you can take throat washings and determine within a few minutes whether it was of a certain virus group or not. I asked Dr. Schaeffer specifically how soon this particular test would be available and used pretty generally. He said it should be pretty well perfected in a matter of from three to five years.

There are also other tests, other studies, going on which are aimed at speeding up the results and which would provide certainly for the clinician a good deal of help. If you could find out within a couple of hours after taking a specimen that it was say, an influenza "A" or something like that, you would know you need not do certain things at that time.

I believe that a laboratory in this State certainly would need at least a couple of years in getting started, and even if funds were available it would take some time to get it set up and to get a virologist. With the growth that is going on in this particular field, it certainly would be good if we could be on the ground floor and not come in after all these tests are going on and it is much more difficult as various places set up these laboratories to give this facility to physicians and health departments, it would be much more diffi-

cult to secure any technologists, and they are quite hard to get, as you know.

PRESIDENT BAKER: Dr. Frelick.

DR. FRELICK: In view of the fact that this is a public health problem in large measure and Dr. Hudson is interested in this, I think that it might be well if the Society would urge the State Board of Health to investigate methods of improving the diagnostic viral facilities in the State either by setting up a branch laboratory in co-operation with the United States Public Health Laboratory in Philadelphia or establishing better courier service between the various hospitals and the Philadelphia Laboratory.

But I think this should be properly financed through public health funds and this would perhaps give us a method for doing this if we would urge it upon the State Board of Health as Dr. Hudson has intimated.

DR. BEATTY: Mr. Chairman, I move that the minority report of the committee be accepted.

(The motion was seconded.)

DR. BOINES: My motion was first.

DR. CANNON: Dr. Boines moved the acceptance of the majority report. I think we would have to act on that first.

DR. WASHBURN: Mr. President, could I by some method be given the privilege of the floor if there is no objection? I am not an officer and I am not on this committee.

I would like to invite attention first that members of a committee may participate in discussion, but if they are not members of the House of Delegates they are not privileged to vote or make motions, that in answer to Dr. Cannon's proposition.

Secondly, I think that this is an amazing recurrence of a very honorable tradition, namely, that here in this House of Delegates, the Medical Society of Delaware, we are once more in the business of dissent and disagreement. Here are two honorable members of the Society who firmly and conscientiously differ in their opinion as to what course should be followed here. I respectfully suggest that in the long run, and to the greatest good for the greatest number, it would be better for us not to adopt either report, either Dr. Beatty's motion or the one by Dr. Boines. I may say that the report could have very properly said that the committee recommends such and such action. But nevertheless here are two different points of view.

In my own judgment the weight of authority, as expressed on the one hand by Dr. Boines and on the other by Dr. Flinn, the weight of authority in my opinion rests with the minority report. But in the centuries gone by, those of us who had any interest in the history of medicine must recall that on many, many occasions constituted authority was in error, was wrong.

So I respectfully suggest that it would be better if this House of Delegates were to receive the report of the committee, both majority and minority, and not authorize or recommend any action whatsoever other than to suggest that the committee be continued for another year, and if by any chance private funds were made available to properly equip and properly maintain and carry on even the beginning of a laboratory, no great harm can possibly come from such a course of action, and possibly good might come from it.

So I would hope, if my suggestion is thought well of, that someone will recommend as I have suggested, that we receive the report, that the com-

mittee be continued in office and authorized to proceed in their studies and in their efforts to obtain money with which to set this project going.

May I add that if it happens that the facilities even in the beginning are not sufficient at the Wilmington General Hospital, I know of no good reason why the Board of Health shouldn't make available the facilities of their Bissell Sanitarium, even as a private enterprise, do you, Dr. Hudson?

DR. HUDSON: It could be as a private enterprise.

DR. WASHBURN: I respectfully submit that recommendation.

DR. CANNON: I have attended a number of these committee meetings and virology is not prominent in my practice, but I am interested in it, and I like what Dr. Washburn has said, but I would like to point out to the House of Delegates that last year in authorizing this committee to proceed they did not have any intention, as I recall, of having the Medical Society of Delaware operate a laboratory. This committee was merely to investigate the desirability, feasibility, practicability of such a laboratory and to lend its support, or not, to any group that would like to form such a laboratory.

I certainly would not like to see the Medical Society of Delaware operate a laboratory. It is not the function of the Society nor of the committee. And the committee's recommendation was actually support for the idea of such a laboratory so that any group, whether it be an independent corporation or a hospital would have the support of the medical profession of Delaware, the medical community would give its blessing to any such laboratory.

I can see if this House of Delegates would vote to support the State Board of Health in requesting appropriations from the Legislature for the establishment of a virologist, Dr. Hudson would be very grateful and could take our recommendation to the Legislature and ask for funds, and maybe the laboratory should properly be with the State Board of Health, and the medical community would function through the State Board of Health, as we do with a number of other services of epidemiological importance and apparently of very little clinical importance.

If the Wilmington General Hospital or the Delaware Hospital or the Memorial Hospital tomorrow would have a benevolent donor who would give them enough funds and would announce they are starting a virus diagnostic service as a part of the laboratory, Dr. Ahbiss, Dr. Cassella, or someone else, the State Society would have no business in saying, well, that is wrong, or that is bad, that you should set up an isotope laboratory or an electroencephalographic department. Those things are the function of the hospital and the hospital asks for funds.

So that before this committee or Dr. Boines or any group went to ask for support for this idea, the purpose of the committee was to get the atmosphere, the climate of opinion regarding the formation of this laboratory. And I think that is the thing the House of Delegates has to decide, whether they want to take no action at all and it still can be independently started with or without our blessing, or the House of Delegates can say, "Yes, we think this is a good idea, and any group that would like to go and formulate such a laboratory has the blessings or the support of the doctors, the medical community in Delaware." I think that is all the farther we can go. We are not directing any one to solicit funds; we are not going to operate

a laboratory; we are not going to organize a laboratory. This is only a policy body.

PRESIDENT BAKER: Time is growing late. Is there any further discussion? The chair will automatically limit it from now on.

DR. WASHBURN: There is nothing before the House.

PRESIDENT BAKER: You have heard the various discussions. You have heard the proposals and the suggestions. If you are ready to act, do you want to act on Dr. Beatty's motion?

DR. CANNON: I think we should act on the majority report which had a recommendation.

DR. BEATTY: There is a motion before the House.

DR. BOINES: How about mine?

PRESIDENT BAKER: Are you a member of the House of Delegates?

DR. BOINES: I am a member of the committee.

DR. CANNON: The majority committee report contains a recommendation which has to be acted on first.

DR. FRELICK: There was no recommendation from the floor that should be acted on so far.

DR. CANNON: It is the committee's motion.

DR. WASHBURN: The committee has no right to make a motion. The only motion really made was that of Dr. Beatty, and so far as I know it was not seconded.

DR. FRELICK: I seconded it.

DR. WASHBURN: I beg your pardon. Then Dr. Beatty's motion is before the House.

PRESIDENT BAKER: You have heard Dr. Beatty's motion that the minority report be accepted.

DR. COMEGYS: I would like to hear that read.

PRESIDENT BAKER: You mean the minority report?

DR. COMEGYS: Not the minority report, I mean the very last sentence there.

DR. BEATTY: I moved that the minority report of the committee be accepted.

DR. COMEGYS: Did he end up the minority report with a recommendation?

PRESIDENT BAKER: The majority report ended with a recommendation.

DR. FRELICK: The minority report did, too.

DR. BOINES: Can't a member of the committee bring that up?

PRESIDENT BAKER: Dr. Comegys, which report did you have reference to?

DR. COMEGYS: The minority report, the motion.

FROM THE FLOOR: The minority report recommended the adoption of the attached plan that he submitted.

PRESIDENT BAKER: Well, as I see it, there is a motion before the House.

DR. CANNON: Why not ask Dr. Flinn to state a motion, not that the minority report be accepted.

DR. BOINES: He is not a Delegate either.

DR. BEATTY: You have a motion on the floor. You have to do something about it.

PRESIDENT BAKER: Well, you have heard the motion on the floor. We probably have to act upon

that first. All in favor of the minority report say "Aye".

(There was a chorus of "Aye's".)

Opposed, "No."

(There was a chorus of "No's".)

PRESIDENT BAKER: It sounds like the "Aye's" have it. Suppose we have a show of hands on that. All in favor of the minority report hold up your hands.

(17 members raised their hands.)

PRESIDENT BAKER: All opposed to the minority report hold up your hands.

(8 members raised their hands.)

PRESIDENT BAKER: It has been moved, seconded and carried that the minority report be accepted by this House of Delegates. I think that this particular subject probably should be kept under consideration in the future because since virology has taken such an important step, we certainly don't want to be behind the eight-ball at a later date. It might be in the province of the State Board of Health at some time to set up such a laboratory.

DR. MCGUIRE: What is the status of Dr. Boines' committee?

PRESIDENT BAKER: That is just what I was getting ready to ask. Does the House wish to have this committee reappointed, carried over to the following year to further consider studies in this particular field and to report back to the next meeting of the House of Delegates?

(A motion was made and seconded.)

PRESIDENT BAKER: It has been moved and seconded that this committee be reappointed with power to continue the study and report back to the next meeting of the House of Delegates.

The motion was carried.

REPORT OF DELEGATE TO A.M.A.

Mr. President and members of the House of Delegates:

It is my privilege as your delegate to the House of Delegates of the American Medical Association to report to you on the activities of that body during the past year. There were two meetings since my last report, the interim session meeting in Philadelphia in December, 1957, and the annual Scientific Meeting in San Francisco in late June of 1958.

One of the features of the Philadelphia meeting was the presentation of a Gold Medal Award as the General Practitioner of the Year to Dr. Cecil W. Clark of Cameron, Louisiana. Dr. Clark, a thirty-three year old country physician, was a medical hero during hurricane Audrey in June of 1957. The Board of Trustees selected him as the General Practitioner of the Year and he was so honored by an appropriate ceremony.

The most controversial issue dealt with at the Philadelphia meeting was the matter of fluoridation of public water supply. The House of Delegates approved a joint report of the Council on Drugs and the Council on Foods and Nutrition, which endorsed the fluoridation of public water supplies as a safe and practical method of reducing the incidence of dental caries during childhood. A brief summary of the voluminous report on the study which was directed by the House at the Seattle Clinical Meeting one year ago is

worthy of insertion in this report and contains the following conclusion:

1. Fluoridation of public water supplies so as to provide the approximate equivalent of one ppm. of fluorine in drinking water has been established as a method of reducing dental caries in children up to ten years of age. In localities with warm climates or where for other reasons the ingestion of water, or other sources of fluorine is high, a lower concentration of fluoride is advisable. On the basis of the available evidence, it appears that this method decreases the incidence of caries during childhood. The evidence from Colorado Springs indicates, as well, a reduction in the rate of dental caries up to at least forty-four years of age.

2. No evidence has been found since the 1951 statement by the Councils to prove that continuous ingestion of water containing the approximate equivalent of one ppm. of fluorine for long periods by large segments of the population is harmful to the general health. Mottling of the tooth enamel (dental fluorosis) occurring with this level of fluoridation, is minimal.

3. Fluoridation of public water supply should be regarded as a prophylactic measure for reducing tooth decay at the community level and is applicable where the water supply contains less than the equivalent of one ppm. of fluorine.

The final adoption of this resolution after years of research, investigation and debate reflects credibly on organized medicine's continuing dedication toward improvement of the health of the American public.

The House, in its vigilance toward the preservation of the free choice of a physician in American medical practice, took note of several threatening elements. It condemned the current attitude and method of operation of the United Mine Workers of America Welfare and Retirement Fund as "tending to lower the quality and availability of medical and hospital care to its beneficiaries". This Section called for a broad educational program to inform the general public, including the beneficiaries of the fund, concerning the benefits to be derived from the preservation of American rights to freedom of choice of physicians and hospitals, in contrast to closed panels and institutions for the treatment of their subscribers. It observed that it would be unethical if a reasonable degree of choice of physician is denied to those cared for in a community where other competent physicians are readily available.

Although we in Delaware, fortunately are not faced with the same problems as are our colleagues in Pennsylvania, Kentucky, Ohio and Colorado, it is well known that regional invasion in the free choice of physician may ultimately affect us all.

Conscious of the necessity of an efficient functioning organization, the House considered the Heller report on organization of the American Medical Association, and reached decisions on ten specific recommendations:

The office of Vice-President will be continued as an elective office; The offices of Secretary and Treasurer will be combined into one office to be known as Secretary-Treasurer, and that officer will be selected by the Board of Trustees from one of its members; The duties of the Secretary-Treasurer will be separated from those of the Executive Vice-President; The office of General Manager will be discontinued and the new office of Executive Vice-President will be established, the latter appointed by the Board of Trustees, will be the

chief Staff executive of the Association; The Council on Medical Education in Hospitals and the Council on Medical Service will continue as Standing Committees of the House of Delegates but their administrative direction will be vested in the Executive Vice-President; The voting members of the Board of Trustees will be limited to eleven, the nine elected Trustees, the President and the President-elect. The Vice-President, the Speaker and Vice-speaker to the House of Delegates will attend all Board meetings, including Executive Sessions with the right of discussion but without the right to vote; The House disapproved of the proposal to elect a Trustee from each of nine physician population regions; The office of Assistant Secretary will be discontinued, and a new office, that of Executive Assistant Vice-President, will be established; The Committee on Federal Medicine will be retained as a Committee of the Council on Medical Service and will not become a part of the Council on National Defense; The Speaker of the House will appoint a joint and continuing Committee of six members, three from the Board of Trustees and three from the House to redefine the central concept of American Medical Association objectives and basic programs, consider the placing of great emphasis on scientific activities, take the lead in creating more cohesion among national Medical Societies and study socio-economic problems.

Finally, the House condemned the Forand Bill as undesirable legislation, approved the firm position taken in opposition to it, and expressed satisfaction that the Board of Trustees has appointed a special "task-force" which is taking action to defeat the bill. In related action, giving strong approval to Dr. Allman's address at the opening session, the House adopted a statement which read:

"It is particularly timely that our President has so fortunately sounded the clarion call to the entire profession for emergency action. With complete unity, definition and singleness of purpose, closing ranks with all age groups and elements of our organization, we must at this time stand and be counted. Thus we can exert the physician's influence in every possible direction against invasion of our basic American liberties in the form of proposed legislation allegedly to compulsorily insure one segment of the population against hazards at the expense of all".

The American Medical Association, meeting in San Francisco in late June, proved again that American medicine carries on its business in a democratic manner and reaches its decisions after full and free debate. The meeting was well attended and the scientific and technical aspects of the program were enthusiastically received. The new "mole-hill" exhibit area just completed under San Francisco's City Civic Center, provided space and accommodations which received universal acclaim by both physicians and registered guests.

On the business side, the House of Delegates considered seventy-two resolutions which covered a wide scope of topics.

Among the more torrid propositions for the House was a demand for immediate action on two resolutions adopted last December. One of these resolutions called for the American Medical Association to initiate discussions with third parties representing patients, for the purpose of developing principles governing the dealings of third parties with members of the medical profession. The other proposed a program of public education on the advantages of free choice of physician by the patient. Both resolutions were aimed at the Medical Care

Plan of the United Mine Workers of North America, which, as administrator of a large fund for medical care of its members, has embraced a policy of selecting panel physicians from the various areas in which it operates.

The Board of Trustees of the American Medical Association asked the Commission on Medical Care Plans to study the December resolutions and their backgrounds and report back their findings and recommendations.

The new resolution introduced by various State delegations at the June meeting demanded immediate action to carry out the purpose of the resolution passed in December. The Reference Committee recommended deferring action until the Commission's report was made, however, it was believed that the report would contain recommendations regarding relation of physician, patients and third parties, which would better define the area of action. However, the House of Delegates over-rode the action of the Reference Committee's report and directed the American Medical Association's staff to begin instantly to carry out the programs in question.

Seven separate resolutions on Social Security went through the mill in the House of Delegates, three of them calling for a referendum of American Medical Association members on compulsory inclusion of physicians under the Social Security laws, two calling for such compulsory inclusion, and one asking for a state referendum regarding Social Security. All of these were defeated, the House of Delegates voting that any poll to be taken should be carried out by those states desiring such action, the results being transmitted to the American Medical Association delegates from the polling state. It was pointed out that the American Medical Association makes no provision in its by-laws for polls or referendums of the membership and its policy-making prerogatives lie in the House of Delegates, whose powers should not be usurped.

Regarding the Veterans Administration, the House noted the expenditure of more than \$619,000,000 for hospitalized care of veterans in 1957, and suggested that vast economies could result from restricting the admission of veterans to those who had service-connected illnesses. About three-quarters of the current admissions are nonservice-connected disabilities. The House also urged that the Dean's Committee limit its activities in Veterans Administration hospitals to those admitting only patients for service-connected disease.

The House also considered the Medicare program and voted down a proposal that repeal of Public Law #569 should be sought. Instead, it was noted that the individual state should determine with Medicare administrators the type of contract they wish. It was also voted to reaffirm an earlier decision that this legislation does not require fixed fee schedules but that physicians should be permitted to charge their usual fee for Medicare cases, in the interests of economy of administration and maintenance of orderly economics in medical practice.

On the subject of raising and distributing funds for voluntary health organizations, the House reiterated its commendation of these agencies, recognized their right to be free to conduct their own programs of research, education and fund-raising, and urged the American Medical Research Foundation to take no steps to endanger the structure of activities of the national voluntary health agency.

The House noted the Council on Mental Health on a report on "Medical Use of Hypnosis" and approved the Council action. It recommended that the report be published in the Journal of the American Medical Association with bibliography attached. In summary, the report stated that the general practitioners, medical specialists and dentists might find hypnosis valuable as a therapeutic adjunct, but in the specific field of their professional confidence. It suggests, however, that all of those who use hypnosis need to be aware of the complex nature of the phenomenon involved. Teaching related to hypnosis should be under responsible medical or dental direction, the report emphasized, and should include indications and limitations for its use. The report urged physicians and dentists to participate in high-level research on hypnosis, and it vigorously condemned hypnosis for entertainment purposes.

In a large group of miscellaneous actions, the House condemned objectionable advertising of over-the-counter medicines; Adopted the amendments to the constitution and by-laws which eliminate the separate offices of Secretary and Treasurer, combining them into one, and which changed the title of the General Manager and Assistant General Manager to Executive Vice-President and Assistant Executive Vice-President; Recommended appointment of a Committee on Atomic Medicine and Ionization and Radiation and suggested that it concern itself with informing the American public on all phases of radiation and hazards related to national health; Approved in principle the admission of the Virgin Islands Medical Society as a constituent society of the American Medical Association.

In the well-appointed ballroom of the Palace Hotel, Dr. Gunderson, of La Crosse, Wisconsin, was inaugurated President of the Association. Dr. Gunderson, who is a general surgeon, had been a member of the Board of Trustees and more recently its Chairman. He is well informed, personable, and a dedicated officer, and the members can be assured of genuine leadership during his tenure. Dr. David Allman, retiring President, from our neighboring state of New Jersey, was complimented for the wisdom, intelligence and energy he displayed during his Presidency.

In elections climaxing the session, Dr. Louis W. Orr, urologist from Orlando, Florida was chosen President-elect. Dr. W. Linwood Ball, of Richmond, Virginia was elected Vice-President. Dr. Vincent Peskey of Los Angeles, was re-elected Speaker and Dr. Norman A. Welsh of Boston, Vice-speaker.

I would again urge our members when attending the interim or the annual session to spend at least a part of their time observing the actions of their House of Delegates. This is your policy-making body and you have a right to appear at Reference Committee meetings and express your opinion and views on any matters which are being acted upon. The House membership not only hopes for, but expects your advice and counsel on matters that are important to organized medicine and the American public. You should avail yourself of this opportunity to express your views.

Finally, I want to express my gratitude to the membership of this House, for the privilege of representing our State Society to this organizational element of the American Medical Association.

H. T. McGUIRE, M.D., *Delegate*

REPORT OF REPRESENTATIVE TO DELAWARE ACADEMY OF MEDICINE

To the Officers and Fellows of the
Medical Society of Delaware:

It is with considerable pleasure that I report that the Building Fund Committee of the Delaware Academy of Medicine was successful in its efforts to obtain funds with which to proceed with the building program of the Academy.

The Chairman of that Committee was Lewis B. Flinn. His report of August 29, 1958 was as follows:

PROFESSIONAL CONTRIBUTIONS

224 personal contributions

(a) cash \$18,133.00

(b) pledged 11,845.00

29,978.00

5 organizations

(a) cash 3,525.00

(b) pledged 14,000.00

17,525.00

47,503.00

LAY CONTRIBUTIONS

208 personal contributions

(a) cash 212,852.87

(h) securities 31,139.00

(c) pledged 10,290.00

254,281.87

301,784.00

Less contributions designated for

operating fund 1,955.00

TOTAL FOR BUILDING FUND \$299,829.87

The medical profession in Delaware has reason to be grateful to its lay friends for this substantial evidence of their confidence and esteem.

Ground has been broken for the new building and we have reason to hope that it will be ready for dedication at the time of or the day before the next Annual Meeting of the Medical Society of Delaware.

The buildings, new and old, have been designed so as to provide office space for the Academy, the New Castle County Medical Society and the Medical Society of Delaware. Additional office space is available for the use of private health agencies. In addition to the present auditorium there will be one seating up to 300 persons and another room of similar size for the use of exhibitors at meetings of our state society. Space for enlarged library facilities has been provided for.

A vote of thanks for a task well done is due the officers of the Academy as well as the Building Fund Committee and its chairman.

The more than generous contributions by our lay friends have made possible the realization of a dream long held by the medical profession of Delaware. Our appreciation and gratitude may be made manifest only by the continued devotion of physicians and kindred professions to the service of mankind, physically and socially.

The Academy has continued its program of education of the public in matters pertaining to the health of individuals. The Academy, with the invaluable assistance of the News-Journal newspapers, the Group Hospital Service, and the Welfare Council of Delaware, has conducted the 6th Annual Series of Public Health Forums. The

speakers, authorities in their special fields, have spoken on such topics as "Combatting the Crippler, Arthritis," "Cancer, the Problem and the Promise," "What's New for the Diabetic?" "Treating Your Itches, Rashes, and Eruptions," and "The Turning Point in Mental Health." These Forums have, in general, been well attended.

The Academy has continued its interest and active support of those programs having to do with the Delaware Bar Association, the clergy, and community affairs, as they concern the health of the people.

Respectfully submitted,
VICTOR D. WASHBURN, M.D.
*Representative to the
Delaware Academy of Medicine*

CANCER REPORT FOR 1957-1958

As liaison officer of the Medical Society of Delaware and the Delaware Division of the American Cancer Society, I would like to present the following report for the year 1957-1958:

Through the Delaware Professional Education Program, physicians, dentists, nurses, etc. were kept informed of the latest developments in clinical cancer. This was done through the magazine, *CANCER*, a bulletin of cancer progress, films and slides. The Society also arranged cancer programs for the State Nurses and State Medical meetings as well as the Academy of General Practice.

The Cytology program is also being promoted. At the present time, a new way of cataloging and follow-up visit is being instituted for the benefit of patients.

In May, 1958, a physician was employed to review, analyze, and evaluate the statistical studies of cancer in Delaware through coordination of the figures available from the tumor registry of each hospital and from the State Board of Health.

Two thousand, two hundred and five patients were examined from September 1, 1957, to August 31, 1958, in 159 detection centers. There were 718 referrals to physicians with 663 of these being to rule out cancer. Three cases of cancer were detected during this period of time—bringing to 100 the number of cases discovered during the period from March, 1948, to the present time.

By February 1, 1959, the Cancer Society expects to end its detection center activity. It is expected that the physicians and the hospitals themselves will take up this phase and make a reality of the phrase—"Each doctors' office a detection center." The hospitals and physicians will be furnished free of charge a notification and follow-up system so that patients will have time to make regular appointments. This will be done by means of a tickler system that will automatically bring up a patient's name at regular intervals and allow time for the patient to be notified. The patient can then make an appointment with the physician of her choice.

Respectfully submitted,
OSCAR N. STERN, M.D.

REPORT ON THE ACTIVITIES OF THE DELAWARE HEART ASSOCIATION 1957-58

As liaison agent between the Medical Society of Delaware and the Delaware Heart Association, I wish to report the following list of regular services that have taken place in the State of Delaware, and will continue to take place throughout the years 1958 and 1959.

1. **CARDIAC CAMP:** Planning and arranging for camp for indigent cardiac children. There were 25 children who attended camp the summer of 1957; this year there were 35 children who benefited from this program.

2. **CARDIAC REHABILITATION PROGRAM:** Develop plan to prepare a program for restoring cardiacs to gainful employment; conducted a survey of case load.

3. **RESEARCH COMMITTEE:** Develop and administer policies pertaining to research; granted funds for three projects in Delaware.

4. **NURSES' SEMINAR:** To further educate the nurses throughout the state.

5. Administered and supervised two clinics for the care of indigent patients.

6. Provided oxygen equipment and wheelchairs to homebound cardiac patients.

7. Provided eminent cardiologist for the annual meeting to better educate the public. This cardiologist also addressed the monthly meeting of the New Castle County Medical Society.

8. Provided literature and pamphlets to better educate the public.

9. Added to the cardiac library at the Academy of Medicine for better proficiency of doctors.

10. Developed interest and supplied film based on resuscitation for cardiac arrest, for better medical proficiency.

11. Provided visual aids, such as heart models, films and film slides to hospital staffs, nurses in training and practical nurses.

12. Developed a Committee which includes representatives of other agencies in the field of Rehabilitation throughout the state, to set up the "Work Classification Unit".

13. Recruited blood donors for patients undergoing heart surgery.

14. Sponsored surgical treatment and catheterization studies for the indigent of the state.

In the year 1958-1959, several projects are under discussion, such as the following:

1. Investigate the feasibility and need for "throat culture" handling for the medical profession, so that prompt reports can be given to physicians, and so that indigent patients may have the benefit of such a program.

2. A statewide rheumatic fever prophylaxis program, so that no child or adult in the state needing this treatment will be denied it.

3. Establishment of a Screening Clinic for heart cases in the down-state area, with Dr. Harry Zinsner in attendance, the location of which is to be determined at a later date after full discussion with all interested parties.

Respectfully submitted,
EDWARD M. KRIEGER, M.D.

LIAISON WITH MENTAL HEALTH ACTIVITIES

During the fiscal year 1957-1958 several significant achievements in mental health were accomplished in the State of Delaware. Outstanding among these achievements has been the establishment of expanded preventive and treatment facilities. It has long been our philosophy that more people can be helped with greater effectiveness if facilities are available in their localities.

In line with this philosophy the program of the Mental Hygiene Clinic has been extended to include a clinic in Sussex County at Stockley, Delaware, to serve Kent and Sussex Counties. With the establishment of this clinic preventive outpatient psychiatric service at State expense has been provided in all three counties at a much more effective and more extensive level than was possible previously. The Stockley Clinic was held during the year on an average of two days a week. The number of patients receiving service has been between ten and twenty-eight with from five to sixteen in psychotherapy.

Another activity of importance and of interest to the community has been the opening of the so-called State Day Care Centers for Severely Retarded Children. These are children with I. Q. less than 30 whose parents are eager to have them remain at home rather than to seek residential care for them. The program began with the opening of the Day Care Center at Georgetown, Delaware, on February 3, 1958. Six children are receiving daily care in this facility. On March 27th, the Dover Day Care Center began service, with five children enrolled. The third and largest center is in Wilmington. It opened on April 28th with 21 children and has had a constant enrollment of twenty. The most recently opened center is at Seaford. On June 25th it began providing care for four children.

These centers are under the general supervision of the Superintendent of the three State psychiatric institutions and the immediate supervision of a well-qualified person, Dr. Charles Jubberville. A total of thirty-six children has received care in these centers. Families have received assistance in the burden of constant care of their severely retarded children. According to the reports from parents and the center workers as well, the children have shown general improvement in socializing activities and in getting along with others. Progress in habit training has been made by some. In several children lengthened attention spans have been noted.

At the Delaware State Hospital before the close of the fiscal the open ward or Social Therapy program was intensified and expanded. Sussex Hall, formerly housing staff members, was completely renovated and made available for the use of patients included in this program. Under this plan of therapy male and female patients are prepared for return to the community by participating in activities, including work, which are a part of extramural life and by experiencing greater freedom of movement around the premises. There are now seven open wards, providing for approximately 265 patients experiences which should facilitate their recovery and return to the community.

The renovation and modernization of several of the units of the State Hospital has provided greatly improved facilities for the care and treatment of the patients. The Medical-Surgical Division was opened in modernized and redecorated premises. This service is under the supervision of a staff of internists of which Dr. Ward Briggs is the Chief. Patients newly admitted for treatment enter the Hospital through modern receiving wards.

Nearing completion is the new acute and convalescent unit. This one-story structure, built at a total cost of \$1,575,000.00, will provide in wards of one, two, and four-bed rooms facilities for 175 mentally ill patients in the acute or convalescent phase of the illness. The building is designed with a music room, an occupational therapy room, and a multi-purpose room which can be used as an auditorium, gymnasium or conference room. The

sum of \$110,000.00 has been allocated for furnishings. Mentally ill patients receiving intensive treatment in attractive home-like surroundings during the acute stage of their illness may be helped to recover more rapidly than was possible in the formalized institutional atmosphere traditionally provided.

Through the co-operation of the Office of Vocational Rehabilitation, The State Mental Health Association and the Delaware State Hospital vocational rehabilitation service has become available to patients while they are convalescent and in preparation for trial visit and discharge. During the past fiscal year 117 patients were referred to the Vocational Rehabilitation Unit. Of this number 87 were accepted for service, 31 were employed and were ready for employment but not yet placed. There were 30 still in training at the end of the year. The program included two classes each of home economic and woodshop classes. Plans were completed to add to the program early in the next fiscal year classes in clerical work.

The Drug Therapy Home Care Program was instituted and has continued to make possible the care of selected patients at home. A registered nurse supervises the patients, reporting to the Clinical Director their condition as well as the mutual relationships of the families and the patients. She also gives to members of the family instruction on the management of the patient and the administration of the medication. There have been 103 patients involved in this program to date.

Education in mental health was given great impetus during the past fiscal year through several projects of the Mental Health Association of Delaware. The Symposium for the Medical Profession held at the A. I. du Pont Institute on April 12, 1958, was well attended and well received. A Workshop for Clergy was sponsored by the Field Services Committee of this organization. Two sessions were held in April and two in May. Delaware clergymen were sent several issues of "Pastoral Psychology."

The Mental Health Association of Delaware in co-operation with the Delaware Chapter of the American Academy of General Practice and the United States Public Health Service, made plans for a post graduate course in Psychiatry for the Family Physician. The program is planned for ten sessions to be held in successive weeks from September 17 through November 19, 1958. The discussions are to be on such pertinent psychiatric problems as danger signals of depressions and potential suicides, the uses and misuses of certain types of drugs, the management of the acute psychotic, alcoholism and drug addiction, geriatric patients, pediatric and adolescent psychiatric problems, the diagnosis and managements of paranoia and the psychopath, and several related problems.

Mental Health Week was observed in Delaware from April 27-May 5, 1958, under the sponsorship of the Mental Health Association of Delaware, the three State psychiatric institutions, and various social agencies and institutions in the State. The program included Open House at the Hospital for the Mentally Retarded at Stockley, a symposium at the University of Delaware, the annual Meeting and luncheon of the Mental Health Association, and the Delaware Mental Health Forum. Dr. Jack Ewalt, the commissioner of Mental Health of the Commonwealth of Massachusetts, brought to the large number of luncheon participants a preliminary report of the activities of the Joint Commission on Mental Illness and Health, of which he is the executive director. Dr. William Menninger of the Menninger Clinic at Topeka,

Kansas, was the speaker for the Delaware Mental Health Forum.

Progress in mental health in Delaware continues to be made, although slowly in some areas. The need is still great, however, for improved programs and facilities as well as for increased professional personnel to serve the Delaware citizens who are in need of help to prevent or recover from mental illness. The combined efforts of physicians, educators, clergy, legislators, the judiciary, and members of families must be mobilized to insure adequate facilities and services for the growing numbers of the mentally ill and emotionally disturbed whose problems are of serious proportions. We cannot rest until all who need help for their problems can obtain such help speedily and effectively.

M. A. TARUMIANZ, M.D.

The Delaware Anti-Tuberculosis Society has continued its state-wide program during the year. Its case finding program included cooperation with the State Board of Health in operating two mobile X-ray units. This program last year reached more than 62,000 Delawareans. X-raying was continued in the offices of the Society for food handlers, patients referred by private physicians and teaching personnel. The Society assisted the Rehabilitation Division in its program. The case finding program for migratory workers was carried on during the summer in cooperation with the United States Public Health Service and the State Board of Health.

The Society during the year approved a grant to the Delaware Academy of Medicine to assist the Academy in expanding its educational and research program. Approval was given by the Society to provide for the establishment of an annual lecture on chest diseases with the Society to assume the obligation involved in the promotion of this annual event.

GERALD A. BEATTY, M.D.

REPORT OF LIAISON COMMITTEE WITH VOCATIONAL REHABILITATION

The Committee had no formal meeting this year. However, matters of common interest were discussed with John G. King, Director of Vocational Rehabilitation.

There has been a steady growth in the number of cases handled by Vocational Rehabilitation, with an all time peak of 490 in the fiscal year of 1958 compared with 16 in 1940, the first year in which this service was available to residents of the State of Delaware. As usual the demands for funds has exceeded the amount of money allotted for this purpose and during the last 4 months of the fiscal year, very little money was available.

Of considerable concern to the State of Delaware, is the 1954 Vocational Rehabilitation Amendments which introduced an allotment formula based on need as measured by States population and per capita income. Delaware being a high income, low population state will be seriously affected by this formula.

Starting in 1960, Federal funds allotted to Delaware will decrease \$13,000 a year, continuing for 4 years so that by 1963 our Federal allotment will be \$52,588 less than at present. If the Vocational Rehabilitation Service is to be available to our State's citizens in the future as it has been in the past, this will mean funds will have to be forthcoming from the State. Assuming the unlikely possibility that there will be no need for a larger budget in 1963, this will mean that half of the

total budget of approximately \$250,000 must be supplied by the State.

Included in this amount was approximately \$18,431 paid to physicians in Delaware for examinations, \$34,867 for surgery and treatment, and \$28,439 for hospitalization.

The Committee does not feel any action should be taken but feels that we should be aware of what is going on in this field and render any assistance when called upon to do so.

Respectfully submitted,
S. WARD CASSELLS, M.D.

REPORT OF THE COMMITTEE ON NOMINATIONS

Your committee presents the following nominees for officers and standing committees of this Society for 1959.

For:
Vice President Daniel J. Preston
Secretary Norman L. Cannon
Treasurer Charles Levy
Representative to the Delaware Academy
of Medicine Victor D. Washburn

COMMITTEE OF BUDGET

Charles Levy
M. A. Tarumianz
W. C. Pritchard, Jr.
T. H. Pennock
Felix Mick

COMMITTEE ON MEDICAL EDUCATION

Lewis B. Flinn
Laurence L. Fitchett
G. Barrett Heckler

COMMITTEE ON PUBLIC LAWS

Wm. G. LaMotte, Jr.
James Beebe, Jr.
J. Leland Fox
J. S. McDaniel, Sr.
Gerald A. Beatty

COMMITTEE ON SCIENTIFIC WORK

James T. Metzger, Chairman
Joseph B. Elliott, Laurel
Norman L. Cannon

COMMITTEE ON NOMINATIONS

Robert W. Frelick
James B. Homan
John W. Alden, Jr.
J. Stites McDaniel

NOMINEES TO THE STATE BOARD OF MEDICAL EXAMINERS

Charles E. Maroney
David N. Sills, Jr.
Ward W. Briggs
Norman L. Cannon
Arthur J. Heather
G. Barrett Heckler
Leslie W. Whitney
Harold A. Tarrant
A. Henry Clagett
Philip D. Gordy

Respectfully submitted,
LESLIE M. DOBSON, M.D.
Chairman

PRESIDENT BAKER: Now we have items of new business coming before the House. Under this we have some resolutions. Will you read those?

DR. CANNON: First, the Council has recommended to the House of Delegates that the bylaws be changed to permit the delegate to the A.M.A. to become a voting member of the Council. The reasons for this are pretty obvious. The delegate to the A.M.A. is our liaison and brings back a

lot of information, and we felt that the Council should have him as a member. This requires an amendment to the bylaws, Article VII, Section 2, adding the words "and the delegate to the A.M.A." It will read that the Council will consist of the representatives from the counties of Kent, New Castle and Sussex, President, Secretary, Treasurer and the delegate to the A.M.A. We would like you to vote on that amendment. And this will have to be read twice, by the way. The second reading has to be at the meeting next Thursday.

DR. CASSELLA: Does a motion have to be made?

DR. CANNON: A motion will have to be made. The Council recommends it.

DR. CASSELLA: I make a motion that that phrase be included.

(The motion was seconded.)

PRESIDENT BAKER: All in favor say "Aye".

(The motion was carried.)

PRESIDENT BAKER: We have another resolution.

DR. CANNON: The Council recommends to the House of Delegates that the office of the Medical Society of Delaware be moved to the Delaware Academy of Medicine upon completion of construction of the Academy's new wing providing that a rent acceptable to both the Society and the Academy can be agreed upon.

PRESIDENT BAKER: You have heard the reading of this resolution. Do I hear a motion that it be accepted?

(A motion was made and seconded.)

PRESIDENT BAKER: All those in favor say "Aye".

(The motion was carried.)

PRESIDENT BAKER: We have another resolution.

DR. CANNON: I would like to preface this a little bit. The House of Delegates had voted an annual contribution to the Academy of Medicine of \$1,000 a year. The Council had recommended during the year that the Medical Society of Delaware contribute \$10,000 to the building fund of the Academy. That was a large sum of money for the Council to spend, especially since it is your money, and we would like to recommend that this contribution be official by the House of Delegates but that the yearly contributions to the Academy be discontinued. We will be paying rent, more rent than we are paying now, and we felt that a \$10,000 contribution plus the rental would be more desirable than continuing this annual contribution.

PRESIDENT BAKER: You have heard the resolution as read. Do I hear a motion that we accept it?

(A motion was made and seconded.)

PRESIDENT BAKER: All those in favor say "Aye".

(The motion was carried.)

DR. CANNON: We have obtained as legal counsel for the Society David Anderson, and he has provided us with a lot of service during the past year, and the Council voted to present him with an honorarium of \$200, which represented the funds that had been allocated to the Committee on Public Laws. They did not use the \$200, and we sent a check to Mr. Anderson as an honorarium in that amount.

He sent us a nice letter and the check back thanking us very much for the idea, but he declined the honorarium, and we would like a resolution passed by the House of Delegates that it express its sincere thanks and appreciation to Mr. David F. Anderson, counsel to the Medical So-

ciety of Delaware, for services during the past year.

(A motion was made and seconded.)

PRESIDENT BAKER: All those in favor say "Aye".

(The motion was carried.)

PRESIDENT BAKER: Next we have communications. We have one from the Delaware State Pathology Society.

September 16, 1958

Medical Society of Delaware
c/o Mr. Lawrence C. Morris
621 Delaware Avenue
Wilmington, Delaware

In recent years the Delaware State Board of Health has been extending free coverage for physicians' private patients for cytological examinations of fluids and secretions from the body. We believe this service to indigent patients is commendable, however, such a coverage has always been provided by the pathologists of the state on request. We do not believe that such use of tax money for private patients is desirable as long as there is private physician coverage in all of the pathology laboratories in the state.

We therefore recommend that the State Medical Society suggest to the State Board of Health and organizations concerned with their activities that the State Laboratory offer free cytological diagnoses to indigent patient *only* and that the physicians of the state society be encouraged to utilize the facilities of their associates, the pathologists, throughout the state.

For the
Delaware State Pathology Society
JOHN W. HOWARD, M.D., *President*
JOSEPH W. ABBISS, *Councilor*

cc: Dr. Harold A. Tarrant

FROM THE FLOOR: Does that apply to the Papanicolaou smears we were talking about?

DR. ABBISS: That is right.

DR. HUDSON: I would like the privilege of the floor for a minute. I would like to cite the history of this thing.

I just found out this was going to be taken up, on Friday, and I called the medical members of the board, the ones I could get. They asked me to remind the Society that this was begun because of the interest of practitioners asking the Board of Health if they could not do this service for them. The matter came up before the New Castle County Medical Society with your pathology group presenting these same arguments about seven years ago, and the Society at that time asked the State Board of Health to go on and provide this service for private physicians.

Now, the Board has instructed me, or the members that I contacted — this is not an official action of the board — that the Board of Health does not wish to get any phase that is properly that of private practitioners. If the pathologists in the State can handle this situation and do a good job, they are perfectly willing to drop the whole thing and let them carry it. It is up to the Society as to what the Board of Health will do, whatever you pass here. However, the members of the board to whom I talked asked me to point out that Cancer is a pretty large problem and a public health problem and that the Board could not in all truth get out of the Cancer business entirely from a case finding and early finding of cases point of view.

The Board, I believe, considers that these Papanicolaou smears are part of a case finding pro-

gram. We do not enter into any actual diagnosis, or treatment of these cases. These are referred back to the private physicians.

However, whatever the Society wishes the Board of Health to do, they will try to carry it out.

DR. WASHBURN: May I speak to that, Mr. President?

As you may or may not recall or be aware, the Delaware division of the American Cancer Society has recently changed its policy, discontinuing the policy which has been in operation for several years of conducting cancer detection centers, and in connection with that decision to discontinue those centers and to emphasize the importance or the fact that the proper place for the detection of cancer was in the office of the members of the medical profession, I addressed a letter to each of the four hospitals in Wilmington asking if they would be willing to establish cancer detection programs in the out-patient departments of those hospitals in Wilmington for indigent patients. At a meeting of the Staff Executive Committee of the Memorial Hospital held within the last few days the Committee voted to authorize or request that the gynecological service in the out-patient department be authorized and requested to pick up the cases that might be referred as indigent patients, but they would be subject to scrutiny or to screening to which all out-patient clinics are subjected, as to their financial status, the theory being that we are prepared to take care of the medically indigent, and I thought this was important made so far as the Delaware division is concerned to provide a means of caring for the medically indigent in cancer detection in the City of Wilmington.

PRESIDENT BAKER: Is there any further discussion?

DR. LAYTON: Mr. President, I object to the fact that the pathologists want the State Board to take over the indigent patient because they want to continue in the private practice, their field. Why don't they also take on like the rest of us the indigent patient? Most of the pathologists have a salary and work on a salary or commission basis and their living is assured. Why can't they do it for the indigent just as well?

DR. ABBISS: I think if you read that more carefully, it says we do take care of indigent patients for nothing. We always bring that point out. The letter so states.

DR. CANNON: We believe this service to the indigent patient is commendable. However, such a service is always covered by the pathologists.

DR. HUDSON: The load of slides that come in, actually this year we will have in the neighborhood of 1,000 a month, a little over 12,000 slides at the end of the year to examine, if it continues as it has in the past few months. It takes, say, 15 or 20 minutes for the average technician, each one. Maybe a pathologist can do it faster, I don't know, but it takes that long to screen an individual slide, and that is a pretty big load. If that load continues to go from the private physicians to the pathologists, it is a pretty big load to assume, even for the pathologists we have in the State. I mean, there are only about five or six, aren't there?

DR. ABBISS: Ten.

DR. HUDSON: That is not too bad. It will give them one thousand apiece.

PRESIDENT BAKER: Well, you have heard the discussion and you have heard the letter read.

DR. CANNON: May I just read that the Delaware State Pathology Society recommends that the State Society suggest to the State Board of Health and organizations concerned with their activity that the State Laboratory offer free cytological tests to indigent patients only and that the physicians of the State Society be encouraged to use the facilities of their associates, the pathologists, throughout the State.

DR. GLIWA: I don't think that the State Board of Health should be saddled with the responsibility of determining indigency on these slides that are coming in. I think it is up to the practicing physician. If he feels he wants the State Board of Health to do it, of course the State Board of Health would probably do it, but I don't think the State Board should determine indigency, that it is up to each individual practicing physician.

DR. ABBISS: We prefer to do them without dealings all throughout the State.

DR. MCGUIRE: May I just come back to some fundamentals, if I may be so imprudent, and that is this: Here we are again coming back to the State and asking for things. We have been asking too long, and this is a fundamental thing that we are constantly asking for, freedom of choice, freedom of action, free medicine, and so on. We started when Dr. Hudson was younger and I was younger, when the only thing the State Board of Health handled was syphilis, gonorrhea and the inner tuberculosis patient. Since then we have gotten into Lord knows how many areas.

This comes back to the fundamental thesis, are we supposed to give something in the practice of medicine every once in a while? I know our current view is that a doctor is supposed to be paid for everything he does. If that is so, then my philosophy is wrong. I think the pathologists should share in doing free work the same as everybody else, and I think this comes back to the fundamental philosophy of the invasion and the requesting on the one hand of the State to do more and complaining on the other hand because taxes are so high. We have gotten ourselves in a very vulnerable position, as to this business of the viral laboratory, which I would be brave enough to predict that will be one of the big problems in medical practice within the next ten years, are we going to the State and ask for it or are we going to do it by the public, private enterprise practice of medicine.

So this comes back to—I agree with Dr. Gliwa that the State Board of Health should not determine indigency. I also agree that the pathologist has as much a right to do something for nothing as I have to go see a baby with measles. So this again comes back to the thing that happened in Britain, that happened in Scandinavia and Italy and all the other places, that eventually they kept asking for more and more. Of course this letter says, private patients. So the responsibility lies with the individual fellow who knows his patient better than anybody else as to their indigency. But I would hope that somewhere along the line we would get some consistency about these things. We are complaining on the one hand and grasping on the other.

DR. POLLAK: The cleavage is quite clear to me. The State Board of Health has cancer clinics, cancer clinics in New Castle, Kent and Sussex Counties, and they do not ask if the patient is indigent or can pay. These smears go to the State Board, and I suppose they should go in the future as long as the State Board of Health has these clinics.

Smears from the private physicians, from his office are a horse of another color. There a

physician can determine whether a patient can pay or not, and all these smears should go to the pathologist with the proper comment that a patient can pay for it or that the patient is indigent. And I am sure that the pathologist can cope with it.

But the situation is becoming more complicated, and will become more so. As Dr. Washburn pointed out, by February 1st the Cancer Society in Wilmington is going out of business as far as the clinics are concerned. Now the indigent patients I presume will go to hospitals and the pathologists will get all those smears, free smears. But the smears from private offices will go to the Board of Health.

The way the Board of Health has difficulties with personnel—and maybe I shouldn't speak about it, but as long as we are laying the cards on the table, I will lay them on the table—only last week I got a phone call from the State Board of Health, whether I would look at 400 slides for Dr. Capana, and I know that other men of our Society had the same request. And the number of slides will increase in the future, and it will become more and more difficult for the State Board of Health to cope with.

So I think it would be to the mutual advantage of everyone if this would be solved in the direction of the pathologists, as has been suggested.

DR. HUDSON: I would like to speak off the record. (Dr. Hudson then spoke off the record.)

PRESIDENT BAKER: If there is no further discussion, we have before us the recommendation in the letter, or, if you have an alternative, please suggest it. If not, we will accept a motion.

DR. HALL: I think it should be pointed out that if this is accepted and we decide that all these should go to the pathologist, we are not going to handle that many, our case finding is going to drop very considerably and cancer is going to increase, so that when a patient comes into your office, you can get a serology for them, a cancer summary, in addition to a complete physical and a history, you have to worry about whether you can pass by a chest x-ray and some of these things that are supported.

I think the important point here is whether we are going to decrease our case finding by this, and I think the answer is yes, that if we charge these people five dollars apiece, many of us who do it routinely are going to stop doing it routinely because we have to consider the patient's pocket-book as well as their future welfare. The pick-up that I have had in four years has been two cases, and I don't know how many I have done, but it has been over 300.

DR. FRELICK: I think this is an important point. I think it is unfortunate in some respects that this has come up when the American Cancer Society is trying to get to this change-over. I think in time this will take care of itself. I think that as patients and physicians understand that they can get better and more rapid service from pathologists and educate their patients in this that the patients will accept it and the physicians will accept it. I think if we try to tell the State Board of Health to go out of the service completely it is going to be difficult to persuade many of the patients, at least initially, that they should pay this extra five dollars. Many will be willing. I have conducted a personal survey the last several weeks on this, and about 70% of our patients are willing to pay the extra. Some feel they would rather not have the smear than pay this extra money. I think we have to remember that in this business of indigency it is difficult sometimes that persons may

still be able to pay an ordinary office fee and not be able to pay the five dollars extra, or be able to pay the five dollars extra and not the office fee. There are many people who don't have the extra five dollars but still are private patients and we still should have I think some leeway some place for these borderline patients, these patients who perhaps cannot afford this extra money, and I don't think we should accept this resolution in this respect, because I think time and education will take care of the problem.

DR. REARDON: I think you have a public relations problem here. People will say, the doctor has enough money now—and when we need their support when the Legislature meets down here in Dover, we don't want to have them antagonistic.

DR. WHITNEY: May I speak briefly on behalf of the American Cancer Society.

Dr. Frelick indicates there is a large program starting now until the first of the year trying to educate the public to deviate from the detection centers to the private physician's office. I think from a historical standpoint we are grateful to the Board of Health for carrying this load of cytological diagnoses when actually adequate facilities were not available elsewhere to have it done.

The American Cancer Society is anxious to provide training for cytologists to make available to the State of Delaware sufficient cytologists for screening smears. I think the time must come when this work is done, as all other private work is done, in our local institutions.

DR. WASHBURN: May I make one comment and it is this: I agree with the doctor here who speaks about this as a public relations problem, among other things, and I think that we have failed to lay emphasis upon the fact that many, many times we who are practicing medicine, there is a question as to whether this patient properly should be asked to pay both the office fee and the fee for the pathologist, that the doctor should

forego his fee, not only in terms of public relations, but in the mission that we are really engaged in, our first obligation is to find these cases of early or unsuspected malignancy, and our obligation is always there rather than in the direction of our own pocketbook.

PRESIDENT BAKER: If there is no further discussion, we have this recommendation which we can either accept, reject, or we can receive. Do I hear a motion for one or the other?

DR. HALL: I move we reject it at this time.

(The motion was seconded.)

PRESIDENT BAKER: All in favor say "Aye".

(There was a chorus of "Ayes".)

All opposed, "No".

(There was a chorus of "No's".)

PRESIDENT BAKER: That sounded about even. Shall we have a hand vote on that or shall we just go ahead and table this?

DR. CANNON: I would like to read these words again: This is a suggestion to the State Board of Health and we are encouraged to do it; this is not committing anyone to any definite course of action.

DR. HALL: May I change my motion. I move we defer any action at this time.

(The motion was seconded.)

PRESIDENT BAKER: It has been moved that we accept it without any action. All in favor say "Aye".

(The motion was carried.)

The Committees on Scientific Work, National Defense, and Hospital-Physician Relationship did not meet during the year.

The Meeting of the House of Delegates adjourned at six thirty.



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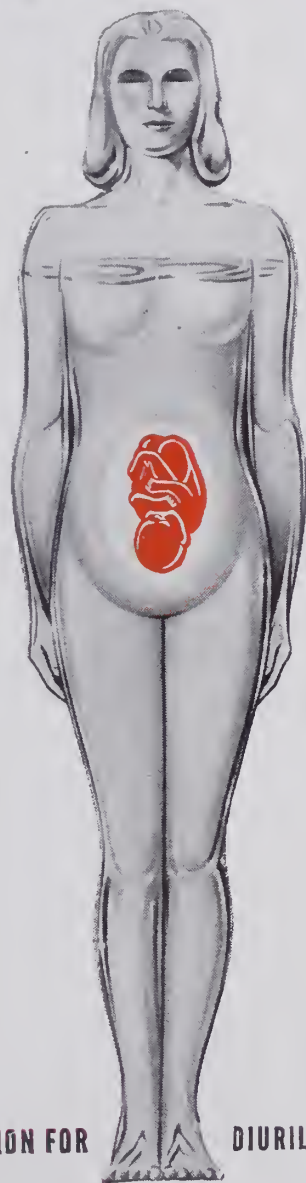
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*Using combined drug therapy with **PLAQUENIL**® or Aralen® as maintenance therapy. With Plaquenil or Aralen alone 62% grade I and II improvement. (Scherbel, A.L.; Harrison, J.W., and Atdjian, Martin: Cleveland Clin. Quart. 25:95, April, 1958. Report on 805 patients with rheumatoid arthritis or related diseases.)

Reasons for Failure:

1. Treatment discontinued too soon (percentage of patients improved increases substantially after first six months).
2. Patients in relapse after prolonged steroid therapy are resistant to Plaquenil or Aralen treatment for several months.

Plaquenil sulfate is supplied in tablets of 200 mg., bottles of 100.

Dose: Initial — 400 to 600 mg.

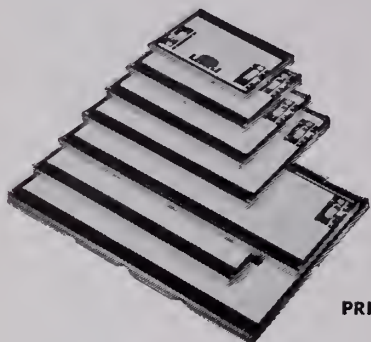
(2 or 3 tablets) daily.

Maintenance — 200 to 400 mg.

(1 or 2 tablets) daily.

Write for Booklet.

G-E molded cassettes cost less— last far longer!



Molded-rubber frame cushions jolts, keeps front and back of cassette in true alignment. Built-in glass-fiber pad gently squeezes screens and film for uniform contact always. "Slide-easy" latches release at light finger pressure, resist accidental opening. Molded-rubber seal prevents entry of light. Exclusive rubber hinge — thoroughly proved in ½-million flexings that left it bonded as firmly as at time of manufacture!

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7x17—\$23.50 10x12—\$20.00 14x17—\$25.25



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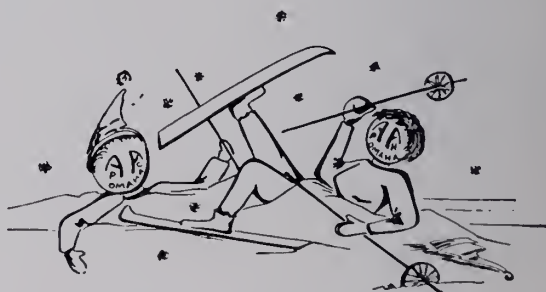
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if you were to examine these patients



could you
detect
the uveitis patient on
Medrol?

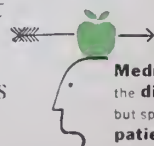
Probably not. Not without a history.

First, because he's more than likely symptom-free.

Second, because he shows none of the disturbing changes in appearance, behavior or metabolism sometimes associated with corticotherapy.

Even your practiced clinical eye would find it difficult to spot someone else's Medrol patient.

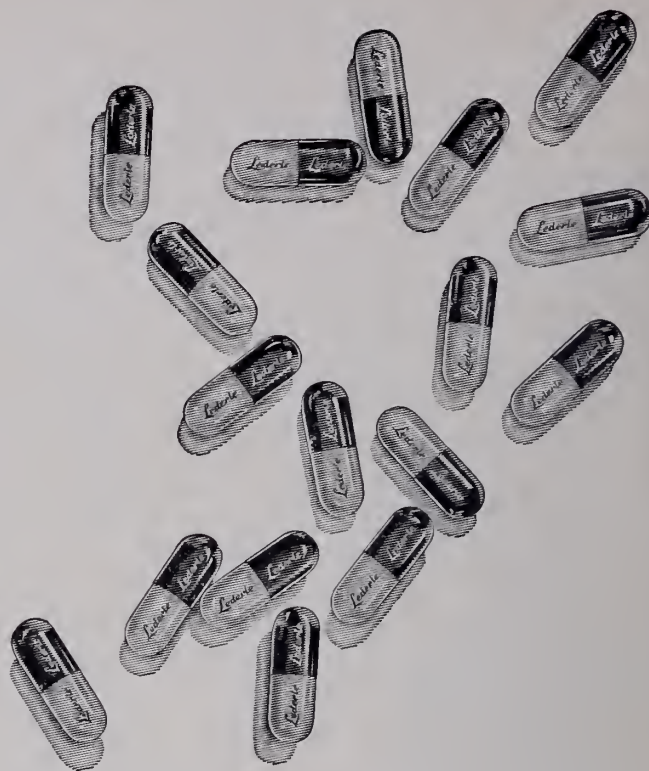
But in your own patients, you could see the advantages of Medrol right away. Why not try it?



Upjohn

Upjohn Company, Kalamazoo, Michigan

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FAST-ACTING ORAL BROAD-SPECTRUM THERAPY. The modern blue and yellow ACHROMYCIN V Capsules, combining equal parts of pure crystalline ACHROMYCIN Tetracycline HCl and Citric Acid, provide unsurpassed oral broad-spectrum therapy.

Speed of absorption adds new emphasis to the benefits of true broad-spectrum action, minimum side effects and wide range effectiveness that have established ACHROMYCIN as an antibiotic of choice for decisive control of infection.

REMEMBER THE V WHEN SPECIFYING ACHROMYCIN V. New blue and yellow capsules (sodium-free)—250 mg. with 250 mg. citric acid, and 100 mg., with 100 mg. citric acid.

ACHROMYCIN V dosage; Recommended basic oral dosage is 6-7 mg. per lb. body weight per day. In acute, severe infections often encountered in infants and children, the dose should be 12 mg. per lb. body weight per day. Dosage in the average adult should be 1 Gm. divided into four 250 mg. doses.

ACHROMYCIN* V CAPSULES
Tetracycline HCl and Citric Acid Lederle

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

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starts
to



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*New vitamin-mineral supplement
in delicious chocolate-like nuggets*



There's nothing easier to give
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A real treat . . .
the children's favorite . . .
tops with adults, too.

Each nugget contains:

Vitamin A	5,000 Units*
Vitamin D	1,000 Units*
Vitamin C	75 mg.
Vitamin E	2 Units†
Vitamin B-1	2.5 mg.
Vitamin B-2	2.5 mg.
Vitamin B-6	1 mg.
Vitamin B-12 Activity	3 mcg.
Panthenol	5 mg.
Nicotinamide	20 mg.
Folic Acid	0.1 mg.
Biotin	30 mcg.
Rutin	12 mg.
Calcium Carbonate	125 mg.
Boron	0.1 mg.
Cobalt	0.1 mg.
Fluorine	0.1 mg.
Iodine	0.2 mg.
Magnesium	3.0 mg.
Manganese	1.0 mg.
Molybdenum	1.0 mg.
Potassium	2.5 mg.

*U.S.P. Units †Int. Units
Dose: One Nugget per day
Supplied: Boxes of 30—one
month's supply
Boxes of 90—three
months' supply or
family package.



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Joint inflammation and muscle spasm are the two elements most responsible for disability in rheumatic-arthritic disorders—and MEPROLONE is the one agent that treats both.

MEPROLONE suppresses the inflammatory process and simultaneously relieves aching and stiffness caused by muscle spasm, to provide greater therapeutic benefits and a shorter rehabilitation period than any single antirheumatic-antiarthritic agent.

MEPROLONE-2 is indicated in cases of severe involvement, yet often leads to a reduction of steroid dosage because of its muscle-relaxant action. When involvement is only moderately severe or mild, MEPROLONE-1 may be indicated.

SUPPLIED: Multiple Compressed Tablets in three formulas: MEPROLONE-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 100). MEPROLONE-1 supplies 1.0 mg. prednisolone in the same formula as MEPROLONE-2 (bottles of 100). MEPROLONE-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 30).

a

Because muscles move joints, both muscle spasm and joint inflammation must be considered in treating the rheumatic-arthritic patient . . .



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Rheumatoid Arthritis

multiple compressed tablets

MEPROLONE®

THE FIRST MEPROBAMATE-PREDNISOLONE THERAPY



b



MEPROLONE is the one antirheumatic-antiarthritic that exerts a simultaneous action to relax muscles in spasm and to suppress joint inflammation...

c

Therefore, **MEPROLONE** does more than any single agent to help the physician shorten the time between disability and employability.



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SINUS
INFLAMED?**

ACCELERATE THE
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SYNEPHRICOL[®] cough syrup

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Central Antitussive Effect — mild, dependable
Topical Decongestion — prompt, prolonged

plus Antihistaminic and Expectorant Action

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Each teaspoonful (4 cc.) contains:

Neo-Synephrine [®] hydrochloride	5.0 mg.
Thenfadil [®] hydrochloride	4.0 mg.
Dihydrocodeinone bitartrate	1.33 mg.
Potassium guaiacol sulfonate	70.0 mg.
Ammonium chloride	70.0 mg.
Menthol	1.0 mg.
Chloroform	0.02 cc.
Alcohol	8%

Bottles of 16 fl. oz.

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BRAND OF CRYSTALLINE NOVOBIOCHIN SODIUM

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Make new Panalba*

(Panmycin[†] Phosphate plus Albamycin**)

**your
broad-spectrum
antibiotic
of first resort**

**Effective against more
than 30 common pathogens,
even including
resistant staphylococci.**

Available forms:

1. Panalba Capsules, bottles of 16 and 100 capsules. Each capsule contains:

Panmycin phosphate (tetracycline phosphate complex) equivalent to tetracycline hydrochloride . . . 250 mg.
Albamycin (as novobiocin sodium) . . . 125 mg.

2. Panalba KM : Flavored Granules. When sufficient water is added to fill the bottle, each teaspoonful (5 cc.) contains:

Panmycin (tetracycline) equivalent to tetracycline hydrochloride . . . 125 mg.
Albamycin (as novobiocin calcium) . . . 62.5 mg.
Potassium metaphosphate . . . 100 mg.

Dosage.

Panalba Capsules

Usual adult dosage is 2 capsules q.i.d.

Panalba KM Granules

For the treatment of moderately acute infections in infants and children, the recommended dosage is 1 teaspoonful per 15 to 30 lbs. of body weight per day, administered in 2 to 4 equal doses. Severe or prolonged infections require higher doses. Dosage for adults is 2 to 4 teaspoonfuls 3 or 4 times daily, depending on the type and severity of the infection.



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*use***XYLOCAINE® HCl SOLUTION**(brand of lidocaine*)*as a local or topical anesthetic*

Xylocaine is routinely fast, profound and well tolerated. Its extended duration insures greater postoperative comfort for the patient. Its potency and diffusibility render reinjection virtually unnecessary. It may be infiltrated through cut surfaces permitting pain-free exploration and longer suturing time.



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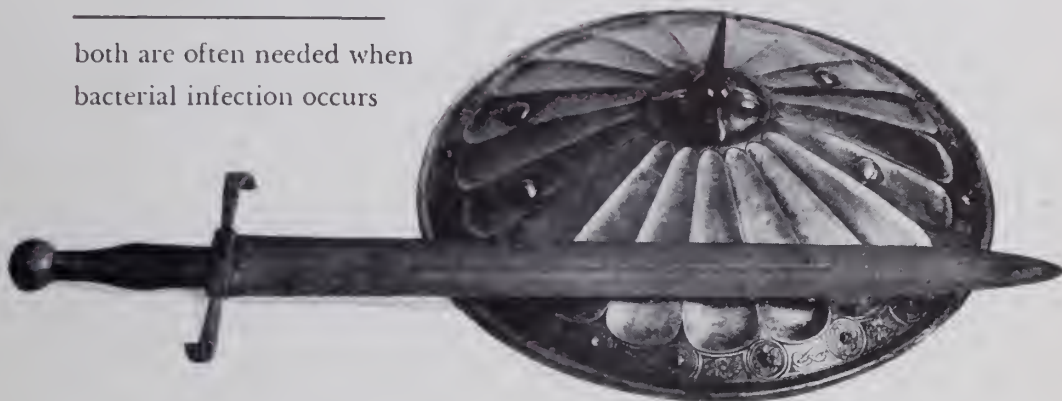
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- prompt, aggressive antibiotic action
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both are often needed when bacterial infection occurs



for a direct strike at infection

Mysteclin-V contains tetracycline phosphate complex

It provides a direct strike at all tetracycline-susceptible organisms (most pathogenic bacteria, certain rickettsias, certain large viruses, and *Endamoeba histolytica*).

It provides the new chemical form of the world's most widely prescribed broad spectrum antibiotic.

It provides unsurpassed initial blood levels — higher and faster than older forms of tetracycline — for the most rapid transport of the antibiotic to the site of infection.

for protection against monilial complications

Mysteclin-V contains Mycostatin

It provides the antifungal antibiotic, first tested and clinically confirmed by Squibb, with specific action against *Candida* (*Monilia*) *albicans*.

It acts to prevent the monilial overgrowth which frequently occurs whenever tetracycline or any other broad spectrum antibiotic is used.

It protects your patient against antibiotic-induced intestinal moniliasis and its complications, including vaginal and anogenital moniliasis, even potentially fatal systemic moniliasis.

MYSTECLIN-V

Squibb Tetracycline Phosphate Complex (Sumycin) and Nystatin (Mycostatin)

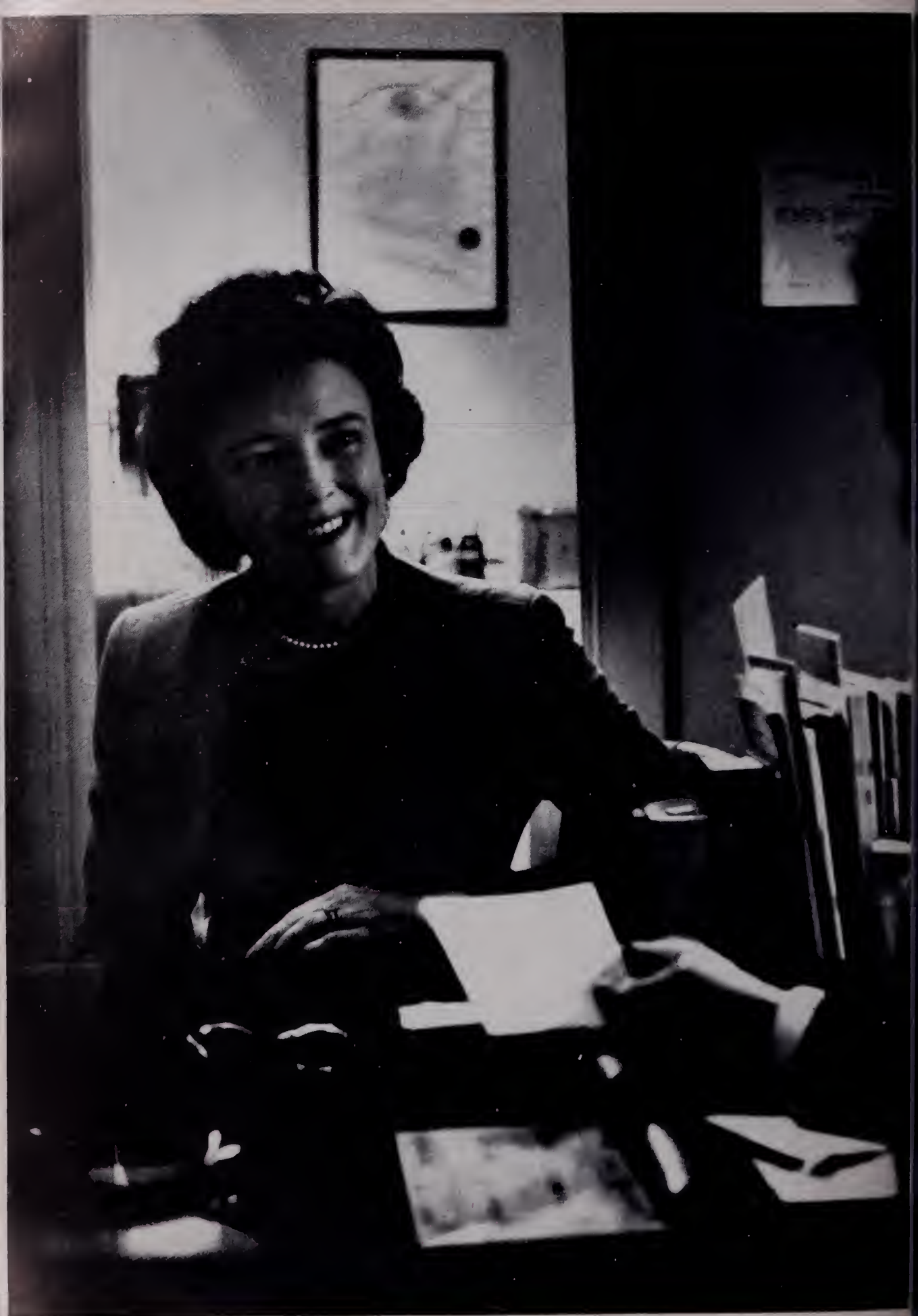
Capsules (250 mg./250,000 u.), bottles of 16 and 100. Half-strength Capsules (125 mg./125,000 u.), bottles of 16 and 100. Suspension (125 mg./125,000 u. per 5 cc.) 60 cc. bottles. Pediatric Drops (100 mg./100,000 u. per cc.) 10 cc. dropper bottles.

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Proven in research

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2. Most consistently elevated serum levels
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And now in practice

4. More rapid clinical response
5. Unexcelled toleration

COSA-TETRACYN*

GLUCOSAMINE-POTENTIATED TETRACYCLINE

CAPSULES

(black and white)
250 mg., 125 mg.
(for pediatric or long-term therapy)

ORAL SUSPENSION

(orange-flavored)
125 mg. per tsp. (5 cc.)
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(orange-flavored) 5 mg. per
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glucosamine-potentiated tetracycline with nystatin
Antibacterial plus added protection against
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CAPSULES (black and pink) 250 mg. Cosa-Tetracyclin (with 250,000 u. nystatin)

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Cosa-Tetracyclin (with 125,000 u. nystatin), 2 oz.
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glucosamine-potentiated tetracycline-analgesic-
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For relief of symptoms and malaise of the
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CAPSULES (black and orange)—each capsule contains: Cosa-Tetracyclin 125 mg.; phenacetin 120 mg.; caffeine 30 mg.; salicylamide 150 mg.; buclizine HCl 15 mg.

REFERENCES: 1. Carlozzi, M.: Antibiotic Med. & Clin. Therapy 5:146 (Feb.) 1958. 2. Welch, H.; Wright, W. W., and Staffa, A. W.: Antibiotic Med. & Clin. Therapy 5:52 (Jan.) 1958. 3. Marlow, A. A., and Bartlett, G. R.: Glucosamine and leukemia. Proc. Soc. Exp. Biol. & Med. 84:41, 1953. 4. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 5. Nathan, L. A.: Arch. Pediat. 75:251 (June) 1958. 6. Cornbleet, T.; Chesrow, E., and Barsky, S.: Antibiotic Med. & Clin. Therapy 5:328 (May) 1958. 7. Stone, M. L.; Sedlis, A., Bamford, J., and Bradley, W.: Antibiotic Med. & Clin. Therapy 5:322 (May) 1958. 8. Harris, H.: Clin. Rev. 1:15 (July) 1958.

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An exact 0.6 cc.
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no hot-weather
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VITERRA PEDIATRIC. How will
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each 0.6 cc. contains:

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		Infants	Children	
A (synthetic)	5000 U.S.P. Units	333%	167%	
D (Calciferol)	1000 U.S.P. Units	250%	250%	
B ₁ (Thiamine)	1 mg.	400%	133%	
B ₂ (Riboflavin)	1 mg.	167%	110%	
B ₆ (Pyridoxine)	1 mg.	††	††	
B ₁₂ (Cyanocobalamin)	1 mcg.	††	††	
C (Ascorbic Acid)	50 mg.	500%	250%	
Niacinamide	10 mg.	200%	133%	
Panthenol	2 mg.			

In a d-sorbitol base for better vitamin B₁₂ absorption
†† Minimum daily requirement has not been established.

DDSAGE: 0.6 cc. or as directed by physician.
In 50 cc. bottles

no refrigeration needed

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For Real Pain ...give real relief:

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Each tablet contains:

Aspirin	200 mg. (3 grains)
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Caffeine	30 mg. (½ grain)
Demerol hydrochloride ...	30 mg. (½ grain)

Average Dose:

1 or 2 tablets.

Narcotic blank required.

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A versatile, well-balanced formula for treating common upper respiratory infections, particularly during respiratory epidemics; when bacterial complications are observed or are likely; when patient's history is positive for recurrent otitic, pulmonary, nephritic, or rheumatic involvement.

CHECKS SYMPTOMS: Includes traditional components for rapid relief of the traditional nonspecific nasopharyngitis, symptoms of malaise, chilly sensations, inconstant low-grade fever, headache, muscular pain, pharyngeal and nasal discharge.

Available on prescription only.

Adult dosage for ACHROCIDIN Tablets and new caffeine-free ACHROCIDIN Syrup is two tablets or teaspoonfuls of syrup three or four times daily. Dosage for children according to weight and age.

TABLETS (sugar coated)

Each Tablet contains:

ACHROMYCIN® Tetracycline	125 mg.
Phenacetin	120 mg.
Caffeine	30 mg.
Salicylamide	150 mg.
Chlorothen Citrate	25 mg.

Bottles of 24 and 100.

SYRUP (lemon-lime flavored)

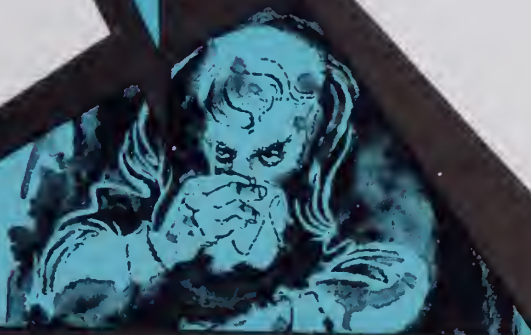
Each teaspoonful (5 cc.) contains:

ACHROMYCIN® Tetracycline equivalent to tetracycline HCl	125 mg.
Phenacetin	120 mg.
Salicylamide	150 mg.
Ascorbic Acid (C)	25 mg.
Pyrilamine Maleate	15 mg.
Methylparaben	4 mg.
Propylparaben	1 mg.

Bottle of 4 oz.

- adenitis
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- pneumonia

prevents the multifarious sequelae



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Serpate[®]

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... the preferred drug where anxiety or emotional agitation must be controlled

... provides sedation without hypnosis, a sense of relaxed well being and tranquility

... effects a gradual and sustained lowering of elevated blood pressure in patients with mild, labile or essential hypertension

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... double assayed to insure optimal therapeutic effect

tested chemically to insure total alkaloid content

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... ideal therapy in labile and moderate hypertension or as adjunctive therapy in severe hypertension

... achieves gradual lowering of the blood pressure, gentle sedation, tranquilization with prolonged effect even after cessation of therapy

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MORE THAN
16 MILLION DOSES
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Now—All cold symptoms can be controlled

This new timed-release tablet provides:

- ...the superior decongestant and antihistaminic action of Triaminic
- ...non-narcotic cough control as effective as with codeine, but without codeine's drawbacks
- ...an expectorant to help the patient expel thickened mucus
- ...the specific antipyretic and analgesic effect of well-tolerated APAP
- ...the prompt and prolonged activity of timed-release medication

Each TUSSAGESIC Tablet contains:

TRIAMINIC® 50 mg.
 (phenylpropanolamine HCl 25 mg.;
 pheniramine maleate 12.5 mg.;
 pyrilamine maleate 12.5 mg.)
 Dormethan
 (brand of dextromethorphan HBr) . . . 30 mg.
 Terpin hydrate 180 mg.
 APAP (N-acetyl-p-aminophenol) . . . 325 mg.

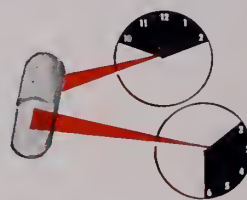
Also available:

for those who prefer liquid medication—

Tussagesic suspension

In each 5 ml.: Triaminic, 25 mg.; Dormethan, 15 mg.; terpin hydrate, 90 mg.; APAP, 120 mg.

Tussagesic timed-release tablets provide relief in minutes, which lasts for hours



first—3 to 4 hours of relief from the outer layer

then—3 to 4 more hours of relief from the inner core

Dosage: 1 tablet in the morning, mid-afternoon, and evening, if needed. Should be swallowed whole to preserve the timed-release action.

Suspension: Adults—1-2 tsp. every 3-4 hours; Children 6-12 years old—1 tsp. every 3-4 hours; Children under 6—dosage in proportion.

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Tussagesic*

*Contains TRIAMINIC to **STOP** running noses  and open stuffed noses orally



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for 3 years
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treatment of hypertension but with
significantly less toxicity."

*Ford, R.V., and Moyer, J.H.: Rau-
wolfia Toxicity in the Treatment of
Hypertension, Postgrad. Med. 23:41
(Jan.) 1958.

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*T.M. Reg. U.S. Pat. Off. for prochlorperazine, S.K.F.

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